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L. G. Allen

ENCYCLOPÆDIA AMERICANA.

A

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IN

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ON

THE BASIS OF THE SEVENTH EDITION OF THE GERMAN

CONVERSATIONS-LEXICON.

EDITED BY

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ENCYCLOPÆDIA AMERICANA.

Pen, Writing-Pens. It is well known that the ancients employed a certain reed, the nature of which is not precisely ascertained, for writing. The reeds were split, and shaped to a point like our quills. When goose-quills first came into use, or who first borrowed from the emblem of folly the instruments of wisdom, is not known. It has been asserted, that quills were used for writing as early as the fifth century, according to the history of Constantius. The oldest certain account is a passage of Isidore, who died 636 A. D., and who, among the instruments employed for writing, mentions reeds and feathers. There exists, also, a poem on a pen, written in the same century, and to be found in the works of Adhelm, the first Saxon who wrote in Latin. Alcuin (q. v.), the friend and teacher of Charlemagne, mentions writing-pens in the eighth century. After that time, proofs exist which put the question of their use beyond dispute. Mabillon (q. v.) saw a manuscript gospel of the ninth century, in which the evangelists were represented with pens in their hands. *Calami* properly signify the *reeds* which the ancients used in writing. Modern authors often use the word as a Latin term for pens, and it is probable that the same was employed to signify quills before the time of Isidore. Reeds were used for a considerable time after the introduction of writing-pens. In convents they were retained a long time for the initials only. By some letters of Erasmus to Reuchlin, it appears that the former received three reeds from the latter, and expressed a wish that Reuchlin, when he procured more, would send some of them to a certain learned man in England. Quills, for some reason, were, about the year 1433, extremely rare in Venice. We learn from the familiar letters of learned men of that time, that they were equally troubled by the rarity of quills and by the difficulty of making good ink. Of late, steel pens have been much used and improved, and for certain purposes, as for signing bank notes, to make the signatures uniform, they appear well adapted; as also for people who cannot make pens; but, on the whole, the quill affords a much easier and handsomer chirography.

Penal Law. (See *Criminal Law.*)

Penance; every penalty borne for the expiation of an offence. In the early Christian church, this ancient judicial principle was transferred to religious penance, that is, to the atonement which the sinner has to make, for his trespasses, to God and the church. According to the doctrine of the Protestants, it is not among the sacraments. This doctrine considers compunction and faith as the only elements of repentance and reformation. Penance is considered by the Catholic church a sacramental institution. The conditions for the necessary transition from bad to good, are a humble consciousness of guilt. The conversion itself is a change in the soul of man, effected by the power of God, but necessarily connected with an exterior alteration. The power of forgiving sins, in the literal sense of the word, say the Catholics, has been transferred by Christ to the apostles, and to the church; but the latter can forgive the sins only of the truly repentant and converted sinner. To bring him to the knowledge of himself, the church has established confession; to calm his conscience, absolution; for the instruction and discipline of the converted, she inflicts penance, as a satisfaction to his own conscience and to God. Confession was not invented by Innocent III, but only enjoined by him at least once a year. It is followed by absolution, according to the authority transmitted to the church, and by the imposition of such penances as are necessary to free from the consequences of sin. The council of Trent declares, in sess. xiv, c. 8, that satisfaction for sin is effected only by Christ, and it is left for the individual to bring forth fruits worthy of repentance. Days of penance and fasting are holy days, which, in certain countries, are fixed annually, or after general calamities, for the purpose of a general expression of penitence, or with the view of appeasing the anger of the Deity. The great day of fasting among the Jews is the Long Night. The Christians imitated these fast-days.

Penates; the private or public gods of the Romans; in the former sense, they resembled the Lares (q. v.), with whom they are often confounded. Not only every house, but every city, had its Penates, and the latter were the public gods. The most celebrated at Rome were those that protected the empire. These were brought into Italy by Æneas, together with Vesta and her eternal fire. According to Varro and Macrobius, the Penates were rude images of wood or stone, furnished with a spear; and generals, on their departure, and consuls, pretors and dictators, when they retired from office, sacrificed victims before them.

Pencil; an instrument used by painters for laying on their colors. Pencils are of various kinds, and made of various materials; the larger sorts are made of boar's bristles, the thick ends of which are bound to a stick, large or small, according to the uses they are designed for; these, when large, are called *brushes*. The finer sorts of pencils are made of camels', badgers' and squirrels' hair, and of the down of swans; these are tied at the upper end with a piece of strong thread, and enclosed in the barrel of a quill. Good pencils, when drawn between the lips, come to a fine point.

Lead Pencils. (See *Plumbago.*)

Pencil of Rays; a number of rays diverging from some luminous point, which, after passing through a lens, converge again to a point.

Pendant. Two paintings or prints of equal dimensions, which are attached in corresponding positions to the same wall, are called *pendants* to each other.

Pendant, or **Pennant**; a sort of long narrow banner displayed from the mast-head of a ship-of-war, and usually terminating in two ends or points, called the *swallow's-tail*. It denotes that a vessel is in actual service.—*Broad pendant* is a kind of flag terminating in one or two points, used to distinguish the chief of a squadron.—*Pendant* is also a short piece of rope, fixed on each side, under the shrouds, upon the heads of the main and fore masts.

Pendulum, in dynamics, is a simple ponderous body, so suspended by a flexible cord from an axis of suspension, that it is at liberty to vibrate by the action of its own gravity alone, when it is once raised, by any external force, to the right or left of its quiescent position; and, in demonstrating the theory of its motion, mathematicians are obliged to assume, that there is no rigidity in the cord, no friction at the axis of suspension, no resistance to motion made by the air, and no variation in the total length of the cord, arising from the variable temperature or moisture of the atmosphere; and if these assumptions were strictly correct, a pendulum, once put in motion, would continue to move, *ad infinitum*, without a further accession of any external force; but, when the pendulum is applied as the regulator of a clock, for which purpose it is admirably adapted, the assumptions which we have stated, require an equal number of mechanical corrections, of which the theory, simply considered, takes no notice. In horology, therefore, the pendulum must be considered not simply as a self-moving pendulous body, without any tendency to come to a state of rest, but as a body whose motion is perpetuated by repeated accessions of force in aid of its own gravity, and whose vibrations are rendered isochronal by a nice adaptation of mechanical contrivances, that prevent or remedy the influence of all natural impediments to uniform and uninterrupted motion. The first kind of pendulum (the theoretical) is called a *mathematical* or *simple* pendulum, the other the *physical* or *compound* pendulum. In the mathematical pendulum, the matter of the pendulous ball or bob is supposed to be collected into one point, so that the centres of gravity and of oscillation coincide. The doctrine of the pendulum is of the highest importance, but, as it cannot be fully developed without the aid of mathematics, nor rendered clear without diagrams, we can state only some of the most obvious properties and circumstances connected with it. A pendulum, once put in motion, would never cease to oscillate in arcs, were it not for the friction at the point of suspension, and the resistance of the air. Neither of these circumstances can ever be avoided entirely, but their effect may be rendered comparatively slight by giving to the weight a lenticular shape, and suspending the rod on a sharp edge, on which it plays with very little friction. The times of the vibrations of a pendulum depend, 1. on the magnitude of the angle of elongation, viz. that angle by which the heavy body of the pendulum is removed from the vertical line; 2. upon the length of the pendulum; and 3. upon the accelerating power of gravity. If all these circumstances are perfectly equal in the case of two pendulums, they will perform an equal number of oscillations in the same time; but if there is a difference in either of the circumstances, the oscillations will differ immediately. Thus, if one pendulum is shorter than the other, and all the other circumstances equal, the shorter pendulum will move quicker than the longer. The law which has been found to exist is, that the lengths of the pendulums are in an inverse proportion to the squares of their oscillations; hence the times of the oscillations are inversely as the square roots of the lengths of the pendulums. Hence a pendulum which is four times as long as another, will vibrate with but half the rapidity, or the shorter pendulum will perform two oscillations whilst the larger performs but one. The pendulum does not perform its oscillations in equal times in all parts of the earth. This is owing to the third of the circumstances enumerated above, upon which the oscillations depend. The gravity, or, what is the same thing, the power of attraction in the earth, does not operate every where with equal force on the pendulum, which, therefore, in some parts of the earth, oscillates more slowly than in others. The cause of this lies in the centrifugal force (q. v.), or in the diminution of the power of gravity caused by it. This becomes more perceptible the nearer the place where the pendulum is observed is to the equator. (See *Earth.*) At the equator, therefore, a pendulum vibrating seconds must be somewhat shorter than at a distance from it. The length of a seconds pendulum at the equator is, according to Biot, 39.011684 inches; in latitude 45°, 39.116820, in 90°, 39.221956. If the globe were a perfect spheroid, the meridians would be perfect ellipses, and in such case the length of seconds pendulums would immediately afford a basis for a calculation of the length of the degrees in the various latitudes; but actual measurements have shown that the meridians contain some irregularities, from which it has been justly concluded, that the earth has not a perfectly regular form, but deviates more or less from the shape of a sphere. We can, therefore, properly draw conclusions from the oscillations of the pendulum respecting the power of gravity only, and not respecting the form of the earth. Besides the friction of the rod, &c., and the resistance of the air, there are also other circumstances which influence the oscillations of the pendulum. These are the changes of heat and cold. Heat lengthens the rod of the pendulum, cold contracts it; hence common pendulum clocks go much quicker in winter; and the change of temperature in rooms which are heated during the day influences them considerably. Many contrivances have been devised for overcoming this inconvenience. One is, by making pendulums of the form of a gridiron, consisting of several parallel bars of different metals, so connected that the effect of one set of them counteracts that of the others. These have been very successful. Rods are sometimes made of certain kinds of wood, well seasoned, which are little influenced by the weather. Astronomical clocks of the present day do not err to the amount of one beat or oscillation of the pendulum in a year. A common clock is merely a pendulum with wheel-work attached to it, to record the number of vibrations, and with a weight or spring to counteract the retarding effects of friction and the resistance of the air. Huygens, who developed the doctrine of the pendulum, which had been treated already by Galileo, first applied it to clocks, and thus became the inventor of the pendulum clock (in 1656). (See *Clock.*)—For the application of pendulums to horology, see Berthoud's *Essai sur l'Horlogerie* (Paris, 1763, 2 vols., 4to.).—See, also, Biot's treatise *Sur la Longueur du Pendule à Secondes*, in the third volume of his *Traité d'Astronomie Physique* (second edition, Paris, 1810).—See, also, Bode's *Anleitung zur Kenntniss der Erdkugel* (second edition, Berlin, 1803).

Penelope. (See *Ulysses.*)

Penguin. (See *Pinguin.*)

Penitentiaries. (See *Prisons.*)

Penn, William, was born in London, in 1644. He was the only son of William Penn, of the county of Wilts, vice-admiral of England in the time of Cromwell, and afterwards knighted by king Charles II, for his successful services against the

Dutch. He appears to have been seriously inclined from his youth, having imbibed religious impressions as early as his twelfth year, which were soon afterwards confirmed by the ministry of Thomas Loe, an eminent preacher among the people called Quakers, then newly associated in religious fellowship. In his fifteenth year, he was, notwithstanding, entered as a gentleman commoner of Christ-church, Oxford, where, meeting with some other students who were devoutly inclined, they ventured to hold private meetings among themselves, wherein they both preached and prayed. This gave great offence to the heads of the college, by whom these zealous tyros were at first only confined for non-conformity; but persisting in their religious exercises, they were finally expelled the university. On his return home, his father endeavored in vain to divert him from his religious pursuits, as being likely to stand in the way of his promotion in the world; and at length, finding him inflexible in what he now conceived to be his religious duty, beat him severely, and turned him out of doors. Relenting, however, at the intercession of his mother, and hoping to gain his point by other means, he sent his son to Paris, in company with some persons of quality; whence he returned so well skilled in the French language, and other polite accomplishments, that he was again joyfully received at home. After his return from France, he was admitted of Lincoln's Inn, with a view of studying the law, and continued there till his twenty-second year, when his father committed to him the management of a considerable estate in Ireland—a circumstance which unexpectedly proved the occasion of his finally adhering to the despised cause of the Quakers, and devoting himself to a religious life. At Cork, he met again with Thomas Loe, the person whose preaching had affected him so early in life. At a meeting in that city, Loe began his declaration with these penetrating words, "There is a faith that overcomes the world, and there is a faith that is overcome by the world;" which so affected Penn, that from that time he constantly attended the meetings of the Quakers, though in a time of hot persecution. He was soon afterwards, with many others, taken at a meeting in Cork, and carried before the mayor, by whom they were committed to prison; but young Penn was soon released, on application to the earl of Orrery, then lord president of Munster. His father, being informed of his conduct, remanded him home; and, finding him unalterably determined to abide by his own convictions of duty, in respect to plainness of speech and deportment, he would have compounded with him, if he would only have consented to remain uncovered before the king, the duke (afterwards James II), and himself. Being disappointed in this, he could no longer endure the sight of his son, and a second time drove him from his family. Yet after a while, becoming convinced of his integrity, he permitted him to return; and though he never openly countenanced him, he would use his interest to get him released, when imprisoned for his attendance at religious meetings. In the year 1668, in the twenty-fourth year of his age, Penn first appeared as a minister and an author; and it was on account of his second essay, entitled the Sandy Foundation Shaken, that he was imprisoned in the Tower, where he remained seven months, during which time he wrote his most celebrated work, No Cross no Crown, and finally obtained his release from confinement by an exculpatory vindication, under the title of Innocency with her open Face. In 1670, the meetings of dissenters were forbidden, under severe penalties. The Quakers, however, believing it their religious duty, continued to meet as usual; and when forcibly kept out of their meeting-houses, they assembled as near to them as they could in the street. At one of these meetings, William Penn preached to the people thus assembled for divine worship; for which pious action he was committed to Newgate, and, at the next session at the Old Bailey, was indicted for "being present at, and preaching to, an unlawful, seditious, and riotous assembly." He pleaded his own cause, though menaced by the recorder, and was finally acquitted by the jury; but he was, nevertheless, detained in Newgate, and the jury fined. Sir William died this year, fully reconciled to his son, to whom he left a plentiful estate, taking leave of him in these memorable words: "Son William, let nothing in this world tempt you to wrong your conscience. So will you keep peace at home, which will be a feast to you in a day of trouble." Shortly after this event, Penn travelled, in the exercise of his ministry, into Holland and Germany. In the year 1672, he married Gulielma Maria Springett, whose father (sir William) having been killed at the siege of Bamber, in the civil wars, her mother had married Isaac Penington, of Chalfont, in Bucks, an eminent minister and writer among the Quakers. In 1677, in company with George Fox and Robert Barclay, the celebrated apologist, he again set sail on a religious visit to Holland and Germany, where he and his friends were received by many pious persons as the ministers of Christ, particularly at Herwerden, by the princess Elizabeth of the Rhine, daughter of the king of Bohemia, and grand-daughter of James I of England. The persecutions of dissenters continuing to rage, notwithstanding their repeated applications to parliament for sufferance and protection, William Penn now turned his thoughts towards a settlement in the new world, as a place where himself and his friends might enjoy their religious opinions without molestation, and where an example might be set to the nations of a just and righteous government. "There may be room there," said he, "though not here, for such a holy experiment." He therefore, in 1681, solicited a patent from Charles II, for a province in North America, which the king readily granted, in consideration of his father's services, and of a debt still due to him from the crown. Penn soon after published a description of the province, proposing easy terms of settlement to such as might be disposed to go thither. He also wrote to the Indian natives, informing them of his desire to hold his possession with their consent and goodwill. He then drew up the Fundamental Constitution of Pennsylvania, and the following year he published the Frame of Government, a law of which code held out a greater degree of religious liberty than had at that time been allowed in the world. "All persons living in this province, who confess and acknowledge the One Almighty and Eternal God to be the Creator, Upholder, and Ruler of the world, and that hold themselves obliged in conscience to live peaceably and justly in civil society, shall in no wise be molested or prejudiced for their religious persuasion or practice, in matters of faith and worship; nor shall they be compelled at any time to frequent or maintain any religious worship, place or ministry whatsoever." Upon the publication of these proposals, many respectable families removed to the new province; the city of Philadelphia was laid out, upon the banks of the Delaware; and in 1682, the proprietor visited his newly-acquired territory, where he remained about two years, adjusting its concerns, and establishing a friendly intercourse with his colonial neighbors; during which period no less than fifty sail arrived with settlers from England, Ireland, Wales, Holland, and Germany. Soon after Penn returned to England, king Charles died; and the respect which James II bore to the late admiral, who had recommended his son to his favor, procured to him free access at court. He made use of this advantage to solicit the discharge of his persecuted brethren, fifteen hundred of whom remained in prison at the decease of the late king. In 1686, having taken lodgings at Kensington, to be near the court, he published a Persuasive to Moderation towards Dissenting Christians, &c., humbly submitted to the King and his great Council, which is thought to have hastened, if it did not occasion, the king's proclamation for a general pardon, which was followed the next year by his suspension of the penal laws. At the revolution, in 1688, Penn's intimacy with the abdicated monarch created suspicions, of which he repeatedly cleared himself before authority, until he was accused by a profligate wretch, whom the parliament afterwards declared to be a cheat and an impostor. Not caring to expose himself to the oaths of such a man, he withdrew from public notice, till 1693. In that year, through the mediation of his friends at court, he was once more admitted to plead his own cause before the king and council, and was again acquitted of all suspicion of guilt. The most generally known production of his temporary seclusion bears the title of Fruits of Solitude, in Reflections and Maxims relating to the Conduct of Human Life. Not long after his restoration to society, he lost his wife, Gulielma, to which he said all his other troubles were as nothing in comparison. He travelled, however, the same year, in the west of England, and in the next prosecuted an application to parliament for the relief of his friends, the Quakers, in the case of oaths. In the year 1696, he married a second wife, Hannah, the daughter of Thomas Callowhill, an eminent merchant of Bristol, and soon after buried his eldest son, Springett, a remarkably pious and promising youth. In 1698, he travelled in Ireland, and resided the following year at Bristol. In 1699, he again sailed for Pennsylvania, with his second wife and family, intending to make his province the place of their future residence; but advantage was taken of his absence to undermine proprietary governments, under color of the king's prerogative, and he thought it necessary to return to England again in 1701. After his arrival, the measure was laid aside, and Penn became once more welcome at court, on the accession of queen Anne. In 1710, finding the air near the city to disagree with his declining health, he took a handsome seat in Buckinghamshire, at which he continued to reside during the remainder of his life. In the year 1712, he had three distinct fits of the apoplectic kind. The last of these so impaired his memory and understanding as to render him ever after unfit for public action; but he continued to deliver, in the meeting at Reading, short, but sound and sensible expressions. In 1717, he scarcely knew his old acquaintance, or could walk without leading. He died in 1718. The writings of Penn (first published in two volumes folio) bespeak his character as a Christian and a philanthropist. Of his ability as a politician and legislator, the prosperity of Pennsylvania is a lasting monument.

Pennalism is the name for the torments and impositions to which the elder students in German universities used to subject the younger ones, called *Pennale* (pen-cases), afterwards *foxes*. This abuse was carried to a great extent; and books written 200 years ago exhibit a real barbarity of manners in this respect. In 1661 and 1663, the German empire thought it necessary to enact laws against *pennalism*. It corresponds to the English *fagging*; and, though few traces of it exist at present in Germany, it is still customary, in most schools, to greet the "foxes" (scholars who ascend from a lower class into a higher) with a sound beating; and we find in Byron's Life, by Moore, to what an extent fagging has been carried in England. It is said that *pennalism* originated in the Italian universities (Bologna, &c.), which is very probable, as the students at these universities kept together in "nations," in order to protect each other, and young students went with recommendations to the *senior* of those nations. But in those rude times, the weak, who wanted protection, were every where exposed to the brutal abuse of the stronger. Among mechanics, apprentices and young journeymen were subjected to similar discipline—a consequence of the rude feudalism which had penetrated every part of society. Others derive these practices from the chapters of the clergy, among whom every new canon was obliged to pay a certain sum for a banquet on his entrance; and it is a well known fact, that many of the customs, songs (decent and indecent), &c. of German students, originated in the chapters and monasteries. (See *Feast of Fools*.)

Pennant, Thomas, an English naturalist and antiquary, born at Downing, in Flintshire, in 1726, studied at Oxford. His first production was an account of an earthquake felt in Flintshire, April 2, 1750, which appeared in the Philosophical Transactions, in 1756; and, the following year, he was chosen a member of the royal society of Upsal, through the influence of Linnæus. He commenced, in 1761, a body of British Zoölogy, which first appeared in four vols. folio, and was republished in quarto and octavo, and translated into German by C. Theoph. Murr. This work was followed by his Indian Zoölogy (1769); Synopsis of Quadrupeds (1771); Genera of Birds (1773); History of Quadrupeds (1781); Arctic Zoölogy (1786); and Index to Buffon's Natural History of Birds (1787). In 1765, Mr. Pennant took a journey to the continent, when he visited Buffon, Haller, Pallas, and other eminent foreigners. He was admitted into the royal society in 1767; and, in 1769, he undertook a tour into Scotland, of which he published an account in 1771, and a second volume appeared in 1776, relating to a second tour in the same country, and a voyage to the Hebrides. In 1778, he published a tour in Wales; to which was afterwards added, in another volume, a Journey to Snowdon. He produced, in 1782, a narrative of a Journey from Chester to London; and in 1790 appeared his amusing work, An Account of London (4to.). In 1793, he professedly took leave of the public in a piece of autobiography—the Literary Life of the late Thomas Pennant; but he subsequently committed to the press a History of Whiteford and Holywell, in his native county. He died in 1798. After his death appeared Outlines of the Globe (4 vols., 4to.), forming a portion of a very extensive undertaking, which was never completed, and some other posthumous publications. His skill in the selection of interesting subjects for discussion, and his felicity of illustration, attracted admirers, rather than the extent of his researches, or the profundity of his observations.

Pennsylvania, one of the United States, as now limited, extends from N. lat. 39° 43′ to N. lat. 42° 16′, and from 74° 35′ to 80° 31′ W. lon. from Greenwich. It is bounded north by New York; east by the river Delaware, which separates it from New Jersey; south-east by the state of Delaware; south by Maryland and part of Virginia, and west by the latter and the state of Ohio. It lies nearly in the form of a parallelogram. Darby, in his Geographical View, states that its greatest length is due west from Bristol, on the Delaware river, to the eastern border of Ohio county, in Virginia, through 5° 56′ of longitude, along N. latitude 40° 9′. This distance, on that line of latitude, is equal to 315 American statute miles. The greatest breadth is 176 miles, from the Virginia line to the extreme northern angle, on lake Erie; and the mean breadth, 157. The same writer calculates the area at above 47,000 square miles, and 30,080,000 statute acres. The original Swedish colony came over in 1638, under the government and protection of Sweden. The Dutch and the Finns had also settled on the Delaware, before the British conquest of the New Netherlands, in 1664. In 1682, William Penn founded a colony, having previously obtained a charter from Charles II, which put him in possession of the soil and government of the country. This charter was granted in consideration of an unsettled pecuniary account between the government and the estate of Penn's father. The emigration from Wales into Pennsylvania was as early as 1683. The emigrants purchased a large body of land, and called the several settlements after favorite places in Wales. The Indian right was respected by William Penn, and his sense of justice induced him to make an equitable purchase from the aborigines, notwithstanding his charter; and the same policy was pursued by the constituted government after the revolution, as the state of Pennsylvania made new purchases from the native proprietors at a fair price, and in open treaty, in 1784. Though the state of Pennsylvania might have considered the proprietary claims as a royalty, to which the independent government could lawfully succeed, yet, as a peculiar acknowledgment of the merits and claims of William Penn and his family, by an act of the legislature, the sum of £130,000 sterling, together with a confirmation of title to all the manor lands, which were ten per cent. on all surveyed lands in the province, was to be offered to the Penn family, which offer was by them accepted. This was a liberal compensation for revolutionary losses, considering that, in the year 1712, William Penn offered to the queen of England the government and soil of the province for the sum of £12,000, payable in four years. This was certainly owing to his pecuniary embarrassments; and although he actually entered into a contract for this purpose, yet an apoplectic attack rendered him incapable of perfecting the legal forms. The litigated question with the state of Connecticut touching the right of territory in the northern part of the state, was depending from the year 1750 until a few years since, when the public and private rights of soil were settled in favor of Pennsylvania, under conciliations and restrictions, determined by special acts of the Pennsylvania legislature and the decisions of the supreme court of the U. States. The seat of the state government was transferred from Philadelphia to Lancaster in the year 1799, and the progress of improvement and population caused it, in 1812, to be removed to Harrisburg, where handsome buildings are erected for the accommodation of the legislature and the officers of the government. The whole state is divided into 52 counties, viz. Adams, Alleghany, Armstrong, Beaver, Bedford, Berks, Bradford, Bucks, Butler, Cambria, Centre, Chester, Clearfield, Columbia, Crawford, Cumberland, Dauphin, Delaware, Erie, Fayette, Franklin, Green, Huntingdon, Indiana, Jefferson, Juniatta, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, M'Kean, Mercer, Mifflin, Montgomery, Northampton, Northumberland, Perry, Philadelphia, Pike, Potter, Schuylkill, Somerset, Susquehannah, Tioga, Union, Vinango, Warren, Washington, Wayne, Westmoreland, York. There are three incorporated cities in this state—Philadelphia, Pittsburg and Lancaster. There are very few counties which have not a borough and many populous towns, the most considerable of which are Harrisburg, Reading, Easton, Carlisle, York, Chambersburg, Brownsville, Washington, &c. By an estimate of the population in 1782, it was supposed to be 330,000. By the census of 1790, it was ascertained to be 434,373. In 1800, it was 602,545. In 1810, it was 810,091. In 1820, it was 1,049,458; and in 1831, it was 1,347,672. The government of Pennsylvania consists of three branches—legislative, executive and judicial. The legislature consists of a senate and a house of representatives. By the present constitution, the house of representatives cannot exceed 100, and are chosen annually. The senate, whose number cannot be more than one third of the lower house, are chosen for four years, one fourth of their body annually; at this period both branches are full. The governor is elected for three years, but cannot hold the office more than nine years in twelve. These elections are all by the people and by ballot. All judicial officers are appointed by the governor during good behavior, and are removable by address of both houses or by impeachment. The inhabitants are principally descended from the English, Welsh, Irish, Scotch and Germans, also French, Swedes, and a few Dutch. The language is generally a pure English, but, in many counties, the German prevails to a considerable extent. The character of the Pennsylvanians is somewhat diversified by difference of extraction and various modes of education, but this is chiefly in minor points. The facilities of receiving education are great. There is a university in Philadelphia, and colleges have been established at Carlisle, Canonsburg, Washington, Pittsburg, and Meadville, and provision has been made by the legislature for the establishment of an academy in every county in the state. There are also flourishing Moravian schools at Bethlehem, Nazareth and Litiz; and, by the will of the late Stephen Girard, of Philadelphia, a fund of $2,000,000 (to be augmented, if necessary, by rents of real property, and residuary personal estate) has been appropriated for the establishment of a college for the education of orphan children. The different religious denominations in Pennsylvania are Presbyterians, Methodists, German Calvinists, German Lutherans, Friends, Episcopalians, Baptists, Roman Catholics, Seceders, Covenanters, Universalists, Swedenborgians, Jews and Unitarians. With regard to the face of the country, the mountains strike the eye, at the first glance on a map, as the most prominent natural features. The Appalachian system in the U. States generally extends in a direction deviating not very essentially from south-west to north-east, but in Pennsylvania, the whole system is inflected from that course, and traverses the state in a serpentine direction. Towards the south boundary, the mountains lie about north-north-east, gradually inclining more eastwardly as they penetrate northward, and, in the central counties, many of the chains lie nearly east and west. But, as they extend towards the northern border of the state, they again gradually incline to the north-east, and enter New York and New Jersey in nearly that direction. The principal ridges on the east side of the Susquehannah, are the Kittatinny or Blue mountains, behind which, and nearly parallel to them, are Peters, Tuscarora and Nescopeck mountains. On the west side of the Susquehannah are the Kittatinny ridges, comprising the North or Blue, the Horse and the Tuscarora mountains, Sherman's hill, Sideling hill, Ragged, Great Warrior's, Tussey's and Wills's mountains; then the great Alleghany ridge, which, being the largest, gives name to the whole; and west of this are the Chestnut ridges, including the Laurel hill. Between the Juniatta river and the west branch of the Susquehannah are Jack's, Tussey's, Nittany and Bald Eagle mountains. The mountain area has been estimated at 6750 square miles, or very nearly one seventh part of the superficies of the state. Some of these mountains admit of cultivation almost to their summits, and the valleys between them are often of a rich black soil, suited to the various kinds of grass and grain. The other parts of the state are generally level or agreeably diversified with hills and vales. The principal rivers are the Delaware, Susquehannah, Schuylkill, Lehigh, Alleghany, Monongahela, Ohio, Juniatta, Youhiogeny, and Clarion, formerly designated as *Toby's creek*. Besides these main streams, Pennsylvania is watered by numerous large creeks and rivulets, to as great a degree as the same extent of country in any part of the U. States. This state deserves credit for her numerous improvements in turnpike roads, canals, rail-roads and bridges, which have been constructed in a superior style of excellence and durability. The first turnpike road in the U. States was made in Pennsylvania. (For further information with regard to these internal improvements, see the various heads.) The soil of Pennsylvania is much diversified; in some parts it is barren, but a great proportion of it is fertile, and a considerable part very excellent. West of the mountains, the soil of the first quality is a deep black mould, equal in fertility to any part of the U. States. Wheat is the most important article of produce. Indian corn, rye, buckwheat, barley, oats, flax, hemp, beans, peas and potatoes are extensively cultivated. Apples, cherries, pears, peaches and plums are abundant. The trees natural to the soil are hemlock, pine, hickory, walnut, wild cherry, locust, maple, chestnut, mulberry, oak, gum sassafras, elm and poplar. The *magnolia glauca* grows in low grounds, and the *acuminata* attains to a great height among the western mountains. Grapes are common, and some of them, mellowed by frost, with the addition of sugar, make a pleasant wine. The wild plum and crab apple grow in abundance. Foreign grapes have in some counties been cultivated to advantage, and wine and brandy, of good quality, have been made. This article of manufacture has hitherto been a matter of experiment only. The sugar-maple, in the western and northern parts of the state, is abundant, and the inhabitants generally make therefrom a sufficient quantity of sugar for home consumption. Iron ore is distributed, in large quantities, in many parts of the state, and the manufacture of iron from the ore, through the furnace, the forge, the foundery, the rolling and slitting mill, the nail cutting machine, up to the finest cutlery, is carried on to a greater extent than in any other state in the Union. Copper, lead and alum appear in some parts of the state. Limestone and marble, of the finest quality for the purposes of architecture and statuary, abound in various parts of the state. In the middle counties, anthracite, and in the western, bituminous coal, is found in great abundance. This state is famous for its breed of draught horses, and nature has abundantly supplied the forests with game. Deer, turkeys, pheasants and partridges are numerous. Wild ducks are found on almost every stream. Wild geese, swans and pigeons are migratory, and frequently found in large flocks. Singing birds of various notes and plumage are common. In the eastern rivers are found rock-perch, bass, shad and herring, which come from the sea in large shoals. In the western waters there is a species of catfish, weighing from 50 to 100 pounds; likewise pike, of an enormous weight and size, are found. Sturgeon is common to both sections of the state. In the smaller streams, trout, pike, chub, sun-perch, mullet, catfish and white salmon are found in their several seasons. Bears, panthers, wild cats, foxes, wolves, beavers, otters and raccoons are more or less common, in proportion to the progress of settlement and cultivation. Rabbits and squirrels are still abundant. In the low grounds are found minks, muskrats, and opossums. Of the numerous tribe of snakes, the bite of the rattlesnake and copperhead alone is deadly. The Pennsylvania farmer lives as comfortably as any one of his station in any part of the world. Commodious farm houses of stone or brick, extensive barns and farm buildings, show the agricultural prosperity of the state. Log and frame houses are common in the new settled country. In the towns and villages is a considerable proportion of brick and stone houses. Pennsylvania exceeds all the other states in the variety and extent of her manufactures, some of which are of superior excellence. Those of iron have been mentioned. The various fabrics from wool and cotton give ample employment to the capitalist and the artisan. All the necessaries of life, and many of its luxuries, are to be found in this state, the produce of its soil and the labor of its citizens. (For the exports of this state, see articles *Philadelphia*, and *Pittsburg*.)

Pennsylvania University. (See *Philadelphia*.)

Penn Township; a small township in Philadelphia county, Pennsylvania. This place was selected by the late Mr. Girard, for the establishment of a school for orphans. The site is about two miles from the old court-house in Philadelphia.

Penny. (See *Sterling Money*.)

Penny Post. (See *Posts*.)

Pennyroyal; a species of mint (*mentha pulegium*), formerly in considerable repute as a medicine, but now almost totally neglected. In this country, the same name is applied to the *hedeoma pulegioides*, a small plant, allied to, and not very different in its sensible properties from the former, nor, indeed, from the other species of mint. (See *Mint*.)

Penobscot; the largest river of Maine. The western and principal branch rises in the western part of the state, and unites with the eastern branch 54 miles north-east of Bangor. After the junction, it runs south by west, till it flows into the head of Penobscot bay, between the towns of Penobscot and Prospect. It is navigable for ships to Bangor, where the tide terminates, 52 miles north of Owl's Head, at the entrance of the bay. Many towns on the banks of the Penobscot are beautiful and flourishing.

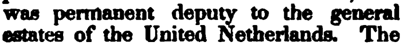
Penobscot Bay, at the mouth of Penobscot river, on the coast of Maine, is a large and beautiful bay, and affords great advantages for navigation. It contains several islands. Its entrance, between the Isle of Holt and Owl's Head, is eighteen miles wide, and its length from north to south is about thirty miles. Lon. 68° 40′ to 68° 56′ W.; lat. 44° to 44° 30′ N.

Pensacola, the capital of West Florida, is situated on a bay of the same name, in lat. 30° 28′ N., and lon. 87° 12′ W. The shore is low and sandy, but the town is built on a gentle ascent. It is in the form of a parallelogram, and the length is nearly a mile. Only small vessels can approach the town, but the bay is one of the most safe and capacious in the gulf of Mexico. It has been selected as a naval station and depot. A stream of fresh water runs through the town. It is regarded as comparatively a healthy place. The present population may be a little more than 2000.

Pensioner; a person who receives a pension from government.—*Grand Pensionary* was the prime minister of the states of the province of Holland, who was called by them advocate-general of the province. He had no deciding voice in the assembly of the states, but only proposed the measures to be discussed. He collected the votes, drew up the reports, opened all memorials addressed to the states, transacted business with the foreign ministers, superintended the revenue and the maintenance of rights and privileges, and took care, in general, of the welfare of the province. He took part in the doings of the college of the counsellors, who exercised the sovereign power in the absence of the estates, and was permanent deputy to the general estates of the United Netherlands. The influence of this first magistrate was very great in Holland, and, therefore, in all the Netherlands. His term of office was five years, after the lapse of which he was generally rechosen. The French revolution and its consequences put an end to this office; but Napoleon, in 1805, made a state-pensionary director of the republic. (See *Schimmelpenninck.*)

Pentaglot. (See *Pentapla.*)

Pentameter; a verse consisting of five feet. These feet are two spondees or dactyles, two dactyles and one spondee, which latter is so severed, that its first syllable follows the two first feet, and its last syllable concludes the verse. The final syllable may also be short. The scheme of the pentameter is, therefore, as follows:



The ancient grammarians, who in this way make of the pentameter a verse of five feet, can give no other reason for so doing, than that there does not exist, as they say, any foot of one syllable. To the ear, however, and in its essential character, the pentameter is, as well as the hexameter, a verse of six parts, having in the third division a long syllable, and in the last a long or a short syllable, on which we dwell as long as on two long syllables, so that the pentameter requires as much time in pronouncing as the hexameter. The pentameter receives a gentle and lovely character from this double pause, by which it is distinguished essentially from the majestic hexameter. (q. v.) Ovid therefore says, that Cupid created it for his sport, by robbing the hexameter of two syllables. If used alone, the pentameter would become monotonous and tiresome; it is, therefore, never employed except alternately with the hexameter, which always precedes it. The metre thus composed of hexameters and pentameters was called by the ancients the *elegiac*, and each two verses a *distich*. (See *Distich*, and *Elegy*.) The character of the pentameter, however, is not exclusively gentle. It may be very poignant if used in an epigram, the point of which is made to coincide with the abrupt termination of the pentameter. A distich of Schiller compares the hexameter to the rising of the water of a fountain, and the pentameter to the falling back of the same.

Pentapla, Pentaglot; a Bible in five languages.

Pentateuch. (See *Hebrew Language*, and *Moses*.)

Pentecost (from πεντηκοστη, the fiftieth); a Jewish festival, celebrated fifty days after the passover, in commemoration of the promulgation of the law on mount Sinai. It was also called the *Feast of Weeks*, because it occurred at the end of a week of weeks, or seven weeks. It is also a festival of the Christian church, occurring fifty days after Easter (q. v.), in commemoration of the descent of the Holy Ghost on the disciples. It is called *Whitsuntide* by the English, according to some, from *White Sunday Tide* (time), because those who were newly baptized appeared at church in a white dress between Easter and Pentecost.

Pentelic Marble. (See *Marble.*)

Penthesilea. (See *Amazons.*)

Pentheus; nephew of Cadmus, and his successor as king of Thebes. He opposed the introduction of the worship of Bacchus, and for this offence was torn to pieces by the Bacchantes, among whom were his own mother and sisters, acting, probably, under the direct influence of the god, like the rioters in the late outrages at Bristol, after they had broken open the wine-cellars of the town-house.

Penumbra. (See *Eclipse.*)

Peon, in the language of Hindoostan; a foot-soldier, armed with sword and target. In common use, the word denotes a footman so armed, employed to run before the palanquin. *Piada* is the original word, of which *peon* is a corruption.

Peony. (See *Pæony.*)

Pepe. (See *Naples and Sicily, Revolution of.*)

Peplum. (See *Panathenæum.*)

Pepper (*piper*); an extensive genus of plants, constituting a distinct natural family—the *piperaceæ*. The species are mostly succulent, perennial, herbaceous or shrubby, often climbing, dichotomous, and jointed. The leaves are very simple, and sometimes peltate, smooth, veined, pubescent, or rough. The flowers are disposed in nearly filiform aments, are destitute of either calyx or corolla, and are separated by very small scales; these aments or spikes are opposite to the leaves, or terminal. The fruit consists of a berry containing a single seed. The species of pepper are almost strictly confined within the limits of the tropics, and abound particularly in the equatorial regions of America. A single species has been discovered in East Florida, inhabiting as far north as lat. 39°. They are inconspicuous, often insignificant plants, in their appearance, and present little variety in the shape of their leaves. The *P. nigrum*, which furnishes the black pepper of commerce, is a native of the East Indies, and is besides cultivated on an extensive scale in that part of the globe. It is a climbing plant, and is supported on a pole or small tree planted for this purpose, which gives to the pepper grounds an appearance somewhat similar to the hop fields in northern climates. The stems are smooth and spongy, provided with broad, ovate, acuminate, seven-nerved leaves, and bearing little globular berries, which, when ripe, are of a bright red color. The pepper of Malacca, Java, and especially of Sumatra, is the most esteemed. Formerly, the export of this article to Europe was exclusively in the hands of the Portuguese, but it is now open to all nations. Its culture has been introduced into the Isle of France, and thence into Cayenne and other parts of tropical America, where it has succeeded perfectly. Black pepper has always formed an extensive branch of commerce; the ancient Greeks and Romans were acquainted with it, and, at the present day, no spice is so generally used; the consumption is prodigious in all parts of the globe, but the southern Asiatics seem to employ it the most frequently. White pepper is nothing more than the best and soundest of the berries, gathered when fully ripe, and deprived of their external skin, by steeping them in salt water for about a week, at the end of which time the skins burst; they are then dried in the sun, rubbed between the hands, and winnowed to separate the hulls; it is much less pungent than the entire berries. The leaves of the *P. betel*, a native of the same parts of the globe, serve to enclose a few slices of the areca nut (thence commonly called *betel nut*), and a little shell lime, which substances together form a masticatory as much in use among these nations as is tobacco in Europe and America. It stains the saliva of a brick-red color, and corrodes by degrees the substance of the teeth, but the consumption is, notwithstanding, prodigious, and it forms a very extensive branch of commerce. The true cubebs is the berry of a third species of pepper (*P. cubeba*), also from the same countries. The berries are globular, and about as large as those of the black pepper; they are tonic, stimulant and carminative, and are frequently used medicinally by the Asiatics. We must not confound this with the tailed pepper, also called *cubebs*, which is the product of the *uvaria zeylanica*, an entirely different plant, although it is used for the same purposes. In the year ending September 30, 1830, there were imported into the U. States 2,275,947 pounds of black pepper, and there were exported 2,160,889. (See *Cayenne Pepper.*)

Pepperell, sir William, a lieutenant-general in the service of the British king before the American revolution, was born in the district of Maine (Massachusetts), and, about the year 1727, was chosen one of his majesty's council, to which he was annually reëlected until his death—a period of thirty-two years. He possessed a vigorous frame, and much energy and firmness of character, which rendered him of great utility to a country exposed to a ferocious enemy. He was bred a merchant, but the principal portion of his time was spent in the discharge of the duties of a soldier. He rose to the highest military honors. When the expedition against Louisburg was contemplated, he was commissioned by the governors of New England to command the troops, and, investing the city in the beginning of May, 1745, soon forced it to capitulate. To reward his services, the king created him a baronet of Great Britain. He died at his seat in Kittery, Maine, July 6, 1759, aged sixty-three. He was distinguished for his social qualities.

Peppermint. (See *Mint.*)

Pepys, Samuel, secretary to the admiralty in the reigns of Charles II and James II, was born at Brampton, in Huntingdonshire, and educated at Cambridge. He early acquired the patronage of Montagu, afterwards earl of Sandwich, who employed him as secretary in the expedition for bringing Charles II from Holland. On his return, he was appointed one of the principal officers of the navy. In 1673, when the king took the admiralty into his own hands, he appointed Mr. Pepys secretary to that office. He was employed under lord Dartmouth, in the expedition against Tangier, and often accompanied the duke of York in his naval visits to Scotland, and coasting cruises. On the accession of William and Mary, he published his Memoirs relating to the navy for ten years preceding, and led a retired life from this time till his death, in 1703. He was president of the royal society for ten years. He left a large collection of manuscripts to Magdalen college, Oxford, consisting of naval memoirs, prints, and five large folio volumes of ancient English poetry, begun by Selden, and carried down to 1700, from which the Reliques of Ancient English Poetry, by doctor Percy, are, for the most part, selected. His Diary affords a curious picture of the dissolute court of Charles II.

Pera; a suburb of Constantinople, connected with the suburb of Galata, and formerly the quarter of the principal Greeks, Armenians, Jews and Franks, except the French who resided in Galata. There were here four Greek churches, and one Roman Catholic, and some monasteries. The Christian ambassadors also resided here, and the European style of dress and living prevailed here; it was therefore called by the Turks *Swine's Quarter*. It was almost entirely destroyed by fire in August, 1831. The palaces of the Austrian and Swedish missions escaped.

Perceval, Spencer, second son of John Perceval, earl of Egmont, born 1762, received his education at Harrow, and Trinity college, Cambridge, of which he became a member about the year 1775. On quitting the university, he studied law. He soon distinguished himself as a sound constitutional lawyer, and obtained a silk gown. In 1801, he became solicitor-general, and, in 1802, attorney-general. On the formation of the new ministry, in 1807, after the death of Mr. Fox, he was appointed chancellor of the exchequer. In this post he continued till May 11, 1812, when, while in the act of approaching the door of the house of commons, a person named Bellingham, who had for some time previously presented a variety of memorials respecting some alleged ill treatment received in Russia, shot him dead, with a pistol, in the lobby. The assassin, who avowed that he had been waiting with the view of destroying lord Leveson Gower, the ambassador to the court of St. Petersburg, made no attempt to escape, and was instantly arrested. Although a plea of insanity was set up by his counsel, he was found guilty, and executed on the 18th of the same month.

Percussion Locks; a late and very useful invention. The percussion lock has no pan. In the place of the pan, a small tube projects horizontally from the side of the gun. In this tube another small tube stands perpendicularly. The cock, instead of being formed to hold a flint, is shaped somewhat like a hammer, with a hollow to fit upon the tube last mentioned. On this tube a little cap of copper is placed, in the bottom of which is a chemical mixture that kindles by percussion. This percussion is produced by the cock, which therefore requires a very strong spring. The powder is made in various ways, and of different materials; among others, of mercury, purified nitric acid, and spirit of wine freed from water. The copper caps in which this chemical powder is placed are two and a half lines long and two lines wide. Sometimes the powder is also formed in pills, and then a somewhat different contrivance is required to place the pills, covered with a little wax, to protect them from moisture, in the small tube. The advantages of a percussion lock are great: 1. Provided the spring of the cock is strong, and the chemical powder good, the gun cannot miss fire (as to the latter, the sportsman must choose a good chemist); while common locks are exposed to miss fire from many causes—bad flints, bad steel, bad priming, and weak springs. 2. The chemical powder explodes much more rapidly and forcibly than common powder, and therefore explodes the powder in the gun itself more forcibly, so as to produce a prompter and more effectual discharge. 3. The moisture of the air has hardly any influence: in a violent rain, the lock is as sure to give fire as in the driest day. 4. The danger of an unintentional discharge is avoided: as long as the copper cap is not placed on the little tube, the gun cannot go off, even if the cock is snapped by mistake; while, with other guns, there is always danger, even when no priming has been put in the pan, because some grains may always escape through the touchhole, and the cock may always be accidentally snapped. The caps or pills which the sportsman must carry with him are not dangerous, because it requires a very strong percussion to explode the powder. (For its manufacture, see *Mercury*, vol. viii, p. 421.) Percussion locks have come very much into use, and attempts have even been made to introduce them into armies, though the expense of the chemical powder may be an objection.

Percy, Thomas, bishop of Dromore, in Ireland, a descendant of the family of Northumberland, was born in Bridgenorth in 1728, and was graduated at Christ-church, Oxford, in 1753. In 1769, he was appointed chaplain to the king, and, in 1778, raised to the deanery of Carlisle, which he resigned four years after for the Irish bishopric of Dromore. The most popular of his works are his Reliques of Ancient English Poetry (in 3 vols., 8vo.), and a poem, the Hermit of Warkworth. He was well skilled in the Icelandic and several of the Oriental languages, especially the Chinese, from which he made some translations. His other writings are a Key to the New Testament, a new version of Solomon's Song, with translations of Mallet's Northern Antiquities, and of some pieces of Icelandic poetry. He also published a curious domestic record, long extant in the Percy family, and known as the Northumberland Household-Book—a document valuable for the light it throws on manners. His death took place at Dromore, Sept. 30, 1811.

Perdiccas; the name of several kings of Macedonia, and, at a later period, of the most distinguished general of Alexander, a noble Macedonian, who attended him on his campaign to Asia, and enjoyed his confidence above all others. Alexander, just before his death, gave him his signet-ring, the emblem of regal power, and, by this action, seemed to fix upon him as his successor to the throne. Perdiccas was ambitious enough to desire this elevation; but the influence of his enemies and rivals prevented him from receiving a higher rank than that of guardian of the heir to the throne. He succeeded, however, in making himself second only to the king. But he aspired still higher, and was engaged in a war with his rival Ptolemy, when his soldiers mutinied, partly owing to his own arrogance. He was assassinated by his soldiers in Egypt B. C. 321, three years after he had been appointed guardian to the successor of Alexander.

Père de Lachaise. (See *Lachaise*.)

Peregrinus Proteus, a notorious character, who flourished in the first half of the second century, was born at Parium, in Mysia. After many excesses, he was charged with parricide, and was obliged to flee. He went to Palestine, became a Christian, and, by his zeal, which brought him to a dungeon, gained the name of a martyr. He received support and sympathy from every quarter, till the prefect of Syria set him at liberty. He now recommenced his wanderings, was excluded from the church for his vices, and then gave himself up to the most disgraceful excesses. An object of universal abhorrence, he desired at least to finish his career in an extraordinary manner. He accordingly gave out that he should burn himself alive at the Olympic games. This he did, in presence of an immense multitude, A. D. 168. Much interest has been given to the history of this singular character by the romance of Wieland.

Perennial, in botany, is applied to those plants whose roots will abide many years, whether they retain their leaves in winter or not. Those which retain their leaves are called *evergreens*; but such as cast their leaves are called *deciduous*.

Perfectibility; the capacity of being made perfect. It is a word used in philosophy, religious and moral, with reference to individuals and to society, to the present and the future state. Moral duties include not only the duties which we owe to others, but also the great duty which we owe to ourselves, to strive uninterruptedly for the improvement of our mental and moral faculties. This supposes that our own improvement is in our own power, which has been doubted by certain philosophers, materialists and others, who make our whole moral condition dependent upon causes beyond our control, thus denying, in fact, a moral condition. The question whether we can ever attain, on earth, to a state of perfection, resolves itself into this—whether we can ever, in this world, acquire a perfect knowledge of our duties, and a perfect will to perform them. The consideration of the hinderances to such a will and knowledge belongs to the great question of the origin of evil. But, however imperfect may be all the attainments that we can make in this world, on which point every one's own conscience will satisfy him better than the most elaborate reasoning, no one should be deprived by such considerations from striving for all the improvement within his power. To stop, or to go backwards, is to be wretched. Secondly, as to the perfectibility of society. It was loudly maintained by some French writers, at the beginning of the revolution of the last century, that society was making a progress which must ultimately end in a perfect state. Whether they meant that the individuals composing society would become perfect, or referred to some unintelligible perfection in the social system, distinct from the individuals composing it, history and the experience of every reflecting man sufficiently prove the notion to be visionary. For some centuries, the European races seem to have been improving in several respects; in others, however, they have essentially retrograded; and, however great the improvement, on the whole, may be, few, we believe, think that the state of human society will ever become perfect; but this is no more discouraging than the corresponding imperfection in the case of the individual. (See *Civilization.*) Thirdly, as to perfectibility in a future state. Of course, we cannot mean by *future perfection* the possibility of attaining unlimited power, wisdom and goodness, because this would destroy all difference between ourselves and God. The word *perfectibility*, used in reference to man, can, of course, mean nothing more than a capacity of unending improvement, and reason does not rebuke the hope of such a progress. It has been asked whether the happiness to be expected from constant progress in a future state would not be counterbalanced by a despondency arising from the consciousness of imperfection, which would only increase with the increase of knowledge. Such a question seems sufficiently answered by the happiness which virtuous effort, and a consciousness of improvement, gives on earth. The beautiful illustration of Leibnitz, when he compared the relation between blessed spirits and the Deity to that existing between the asymptote (q. v.) and the hyperbola, the former of which is mathematically proved to approach the latter *ad infinitum*, without ever reaching it, is well known; but, though a beautiful comparison, it throws no light upon the question. "Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him."

Pergolesi. (See the last page in the Appendix, end of this volume.)

Peri. The Peris, in Persian mythology, are the descendants of fallen spirits, excluded from paradise until their penance is accomplished.

Pericardium, in anatomy, is a membranous bag filled with water, which contains the heart in man and many other animals.

Pericarpium, among botanists; a covering or case for the seeds of plants.

Pericles, one of the most celebrated statesmen of Greece, whose age (about B. C. 444) was the most flourishing period of Grecian art and science, was born at Athens. His father was Xanthippus, a general celebrated for his victory over the Persians at Mycale. Damon, Anaxagoras, and Zeno of Elea, were his instructers. Connected by family relations with the aristocracy, he at first avoided taking part in the concerns of state, both on account of the jealousy with which the multitude viewed this party, and because Cimon was already at its head. He therefore aimed, at first, only to gain the favor of the popular party. Cimon was munificent and affable; Pericles, on the contrary, shunned festivals and all public amusements. He was never seen abroad, but in the Prytaneum and the popular assembly, and his manners were characterized by gravity and dignity. As he was not a member of the Areopagus, he used all his influence to diminish the consideration of that body, and instigated his friend Ephialtes to make that tribunal an object of jealousy in the eyes of the people, and to procure the passage of a decree transferring the investigation and decision of most cases to other courts. His eloquence was so elevated and powerful, that it was said of him that he thundered and lightened in his speeches, and his countrymen called him the *Olympian.* He carefully avoided all that could displease the people, and even submitted to indignities with the greatest patience. It is said that a common citizen followed him to his house one evening from a popular assembly, reviling him at every step. He ordered a servant to light the man home with a torch. When the popular party procured the accusation of Cimon, Pericles was one of the judges. He conducted, however, with great moderation, and spoke of his distinguished fellow-citizen with due respect. The banishment of his rival removed all obstructions to the execution of his ambitious designs. As Cimon had fed and clothed the people, Pericles also provided for the wants of the needy from the public treasury. In the war which broke out between the Athenians and Lacedæmonians, B. C. 458, Pericles exposed himself to the greatest dangers in the unsuccessful engagement at Tanagra, and soon after invaded the Peloponnesus with a fleet and a small army. To please the people, who desired the return of Cimon, he caused a decree to be passed for his recall. By means of his sister, however, Pericles had made a private agreement with Cimon, by which the command of the army was left to the latter, and the government of the state was to be in the hands of Pericles. On the death of Cimon, he became, as it were, prince of Athens; for, although the aristocracy set up against him Thucydides, the son of Melesias, a relation of Cimon, he was too unequal to maintain the opposition. "If I should throw him to the ground," said he once of Pericles, "he would say that he had never been prostrated, and would persuade the spectators to believe him." From this time, Pericles ruled the state, but without assuming the title of prince, and endeavored to occupy the people with the establishment of new colonies or warlike enterprises. By his great public works, he flattered the vanity of the Athenians, while he beautified the city, and employed many laborers and artists. To pay the expenses of these undertakings, he caused the public treasury of Greece to be transported from Delos to Athens, and justified this act of perfidy by saying that the money had been raised to defend the nation from the invasion of barbarians; and, as this end had been attained by the exertions of the Athenians, the allies had no further right to inquire into the expenditure of the funds. His personal integrity in pecuniary matters was above suspicion. Of this we have a remarkable example: During an expedition against Eubœa, the Lacedæmonians invaded Attica, as the allies of the Megarians. Pericles averted an attack by bribing the tutor of the Spartan king. When he submitted his accounts for examination, ten talents were charged for secret services, and the Athenians were satisfied without any further account. Pericles finally made himself master of the important island of Eubœa, B. C. 447, and, soon after, concluded a truce of thirty years with the Spartans. To set bounds to the popular power, which he had hitherto labored to increase, he now procured the revival of an old law, declaring no person a citizen of Athens whose father and mother were not both Athenian citizens, and caused 5000 individuals, who had before been free, to be sold as slaves. This act is a proof of the great influence of Pericles, and, doubtless, obtained the approbation of a majority of the citizens, whose importance was increased by a diminution of their numbers. Pericles took advantage of the armistice with Sparta to make war upon the Samians (B. C. 440), who opposed the pretensions of Athens. He was partly persuaded to undertake this war by Aspasia. (q. v.) The expedition, in which she attended Pericles, ended in the subjugation of the island and the restoration of the democratic government. The Samians soon rose and expelled the Athenian garrison; but Pericles again reduced them to subjection. On his return to Athens, he delivered the celebrated funeral oration in memory of those who had perished in the expedition, which had such an effect upon his audience, that the women crowded about him, and wreathed his temples with flowers. Thucydides was banished in the struggles of parties, and the importance of Pericles was greatly increased, till the jealousy of the Athenians awoke, when they found those hopes abortive which had been excited by the events that preceded the Peloponnesian war. Some of the friends of Pericles became the objects of public prosecutions—Anaxagoras, his venerable instructer, on a charge of irreligion; Aspasia on account of her connexion with Pericles. He undertook to plead her cause himself, and was so affected that he forgot his dignity, and burst into tears. He procured her acquittal; but he withdrew Anaxagoras from the attacks of his enemies, by conducting him from Attica under his own protection. When the Spartans, who had assumed the protection of the smaller states of Greece, sent to Athens, demanding a compensation for the injuries which had been done to these states, and threatening war in case of refusal, Pericles persuaded the Athenians to reject the proposal, and thus became the author of the fatal Peloponnesian war. (See *Peloponnesus*.) Some maintain that his object was to keep his countrymen employed abroad, in order to avert their attention from his government, particularly as his enemies were daily increasing, and that Aspasia entertained a violent hatred against Sparta. The probability is, that Pericles, misled by his views of the dignity and importance of the Athenian republic, would consent to no concessions, particularly as such a measure would be fatal to his own greatness. At the commencement of the war (B. C. 431), Pericles recommended to the Athenians to turn all their attention to the defence of the city and to naval armaments, rather than to the protection of their territories. Accordingly, as he was made commander-in-chief, notwithstanding the murmurs of the Athenians, he allowed the superior forces of the Spartans and their allies to advance to Acharnæ, in Attica, without resistance, and, at the same time, sent a fleet to the shores of Peloponnesus, to Locris and Ægina, which took twofold vengeance for the ravages in Attica. After the Peloponnesians had retired, he invaded the territory of Megaris, which had been the cause of the war. At the end of this campaign, he delivered a eulogy over those who had fallen in their country's service. The next year, a plague broke out at Athens, which made such dreadful havoc, that Pericles was obliged to summon all his fortitude to sustain his countrymen and himself. To occupy their attention, he fitted out a large fleet, and sailed to Epidaurus; but the mortality among his troops prevented him from effecting any thing important. He returned with a small force; but the Athenians no longer put confidence in him. He was deprived of the command, and obliged to pay a heavy fine, though no particular crime was charged against him. The fickle people, however, soon recalled him to the head of the state, and gave him more power than he had before enjoyed. But, amid his numerous civil cares, he was afflicted by domestic calamities. His eldest son, Xanthippus, who had lived at variance with him, died of the plague. The same disease carried off his sister, and many of his nearest relatives and friends, and, among the rest, Paralus, his only remaining son by his first marriage. This affliction moved him to tears. To console him for this loss, the Athenians repealed the law which he had himself previously introduced, in regard to children whose parents were not both citizens, and thus placed his son by Aspasia among the citizens. But his strength was gone: he sunk into a lingering sickness, and died B. C. 429, in the third year of the Peloponnesian war. When he lay upon his death-bed, his friends, in their lamentations, spoke of his great achievements; but he suddenly started up and exclaimed, "In these things I have many equals; but this is my glory, that I have never caused an Athenian to wear mourning." By the death of Pericles, Athens lost her most distinguished citizen, to whom, although deficient in severe virtue, is not to be denied greatness of soul. His education enlightened his mind, and raised him above the prejudices of his age. His ambition was to give his country supremacy over all the states of Greece, and, while he ruled it, Athens maintained this rank both in an intellectual and political view. To Pericles the city was indebted for its finest ornaments—the Parthenon, the Odeon, the Propylæum, the Long Walls, numerous statues, and other works of art. The golden age of Grecian art, the age of Phidias (q. v.), ceased with Pericles. His name is therefore connected with the highest glory of art, science and power in Athens; and if he is accused of having conducted the city to the edge of that precipice from which she could not escape, yet he must receive the praise of having contributed greatly to make her the intellectual queen of all the states of antiquity.

Périer, Casimir, formerly a banker, and member of the French chamber of deputies, in which he was one of the most distinguished liberal orators, was born at Grenoble, in 1777, and, after finishing his education at the college of the oratory in Lyons, entered the military service at an early age. He served with honor in the campaigns of Italy (1799 and 1800), but on the death of his father, a respectable merchant, he abandoned the profession of arms for mercantile business. In 1802, he established a banking house in company with his brother, in the management of which he acquired an intimate acquaintance with the most difficult and important questions of public credit and finance. Cotton manufactories, machine manufactories, and several other manufacturing establishments, were carried on by the brothers, and Casimir introduced improvements into the processes. In 1815 Casimir Périer published a pamphlet against the system of foreign loans, characterized by clearness and soundness of views, and in 1817 he was elected to represent the department of the Seine in the chamber of deputies. Here he was no less distinguished as the firm and eloquent advocate of constitutional principles, than as an enlightened and sagacious financier. In the revolution of 1830, he took a decided part in favor of the national liberties; was one of the deputation appointed to wait on marshal Marmont during the three days; a member of the municipal commission of the provisional government, July 28; but did not sign their declaration of the dethronement of Charles X. When Charles made his last effort to retain the throne, he ordered the duke of Mortemart to form a ministry, who made M. Périer minister of finance, and general Gérard that of war. August 5th, Périer was chosen president of the chambers, and on the 12th formed one of the first cabinet of the new king, without holding the port-folio of any department. In March, 1831, he succeeded Laffitte as president of the council, with the department of the interior; Louis (q. v.) being minister of finance, Sébastiani of foreign affairs, and De Rigny of the marine. (See *France*, in the Appendix, at the end of the work.) The chief endeavor of M. Périer's ministry, so far, appears to be to keep France at peace with Europe, and thereby to make commerce and manufactures flourish, to establish civil liberty and repress the military spirit; and, secondly, to render the government more firm. The opposition reproach him with ignominiously courting the favor of the absolute monarchs, with having deprived France of the honorable and elevated position due to her in the European system, with being unwilling to follow up, frankly, the principles of the "July revolution," and with having sacrificed Italy to Austria, and Poland to Russia.

Perigee, or **Perigeum**. (See *Apogee*.)

Perihelion, or **Perihelium**; that point in the orbit of a planet, or comet, which is nearest to the sun; being the extremity of its transverse axis, nearest to that focus in which the sun is placed, and thus opposed to the *aphelion*, which is the opposite extremity of the same axis. The ancient astronomers used, instead of this, the term *perigæum*, as they placed the earth in the centre. The perihelion distances of the several planets, the mean distance of the earth from the sun being taken as unity, are as follows:

Mercury,	.1815831	Ceres,	2.6890660
Venus,	.7164793	Pallas,	2.5222080
Earth,	.9831468	Jupiter,	5.1546127
Mars,	1.4305595	Saturn,	9.4826022
Vesta,	2.2797800	Uranus,	19,1366347
Juno,	2.4122190		

(See *Aphelion*.)

Perillus. (See *Phalaris*.)

Perimeter, in geometry; the bounds or limits of any figure or body The perimeters of surfaces or figures are lines; those of bodies are surfaces. In circular figures, instead of *perimeter*, we say *circumference*, or *periphery*.

Period (from the Greek περιοδος, a circuit); a division of time, or of events occurring in it. The astronomer calls the time of a revolution of a heavenly body, or the time occupied in its return to the same point of its orbit, its *period*. (See *Planets*, and *Kepler*.)—In chronology, *period* denotes a division of time, during which certain phenomena complete their courses, which are repeated in never-ending succession. Chronology depends entirely upon astronomy; and before the latter had made known the true motions of the heavenly bodies, the former remained in a confused state. The principal periods of the Greeks were—Meton's lunar period of 19 years, or 6940 days, according to which the Greeks computed their astronomical calendar from 432 B. C.; the period of Calippus (330 B. C.), or that of Alexander, which comprised 4 times 19, or 76 years *minus* 1 day; and the still more accurate period of Hipparchus, of 304 years, which made the tropical solar year only 6 minutes and 16 seconds too long. The Roman indiction (q. v.) was a period of 15 years, the origin of which is not very clear. The Julian period, invented by Scaliger, consisting of 7980 Julian years, was intended to reduce to the same result the different computations of the year of the birth of Christ from the creation. It is the product of the numbers 28, 19 and 15; or the solar, lunar and indiction cycle. (See *Cycle*.) After 28 times 19, or 532 years, the new and full moons return in the same order, upon the same day of the week and month, in the Julian calendar, and the three chronological cycles (the solar cycle of 28 years, the lunar cycle of 19 years, and the indiction cycle of 15 years) recommence at the same time. This period is also called the great *Paschal* cycle, and the *Victorian* or *Dionysian* period. The year of the birth of Christ, in the Julian period, is 4714. It is now little used, as we reckon by years before and after Christ.—In history, a *period* is a certain division of time, determined by events, giving to it the character of a whole. A judicious division of history into periods is very necessary for a clear view of the whole, and, in fact, is the necessary result of an intelligent method of studying history. The ancients wrote general history ethnographically (q. v.), and chronologically, or in the way of annals. Bossuet, in his *Discours sur l'Histoire universelle*, and Offerhaus, in his *Compendium Historiæ universalis*, divided history by centuries, and by subdivisions of the latter; but modern historians have preferred to divide universal history by periods. Voltaire, in his *Essai sur l'Histoire générale*, Millot, Condillac, Gatterer, Schlözer, and, in general, all the principal modern historians, have followed this plan. The progress of civilization and of civil liberty is more important than the order of dynasties, or the fluctuations of power; and the periods of history ought to be founded upon the various stages or manifestations of these. A judicious division into periods can be effected only by a clear and philosophical view of history. Philosophical views are the great object of the study; but incautious philosophizing often leads the reader to deductions drawn from his own imagination rather than from a rigid scrutiny of facts. The division of history into periods, founded on general views, requires, therefore, great care. The philosophico-historical school of Germany, at the head of which, at present, we may put professor Hegel, has fallen into glaring errors in this respect. This same censure, however, by no means belongs to all the philosophical historians of that country, but should be confined to the school which is particularly termed *philosophical*. The division into periods must vary, both according to the chief aim of the historian and according to the amount of historical knowledge existing in his time. Thus a historian who proposes to write a history of religions, or who thinks that religious revolutions have always been the most important, and are the best standards by which to measure the other changes in human society, will establish his division into periods accordingly. Another will take, as his basis, the political changes of nations. The most perfect division would be that which should adopt, as the basis of each period, that feature which was the most strongly characteristic of it, which is not always easy, as one principle often continues strongly operative, while another has risen to an important influence, threatening to supersede it. In such a division of universal history, civilization, religion, government, learning, important inventions, &c., would all become, in turn, the bases of the various periods. (See *Epochs*, and *History*.)

A *period*, or *sentence*, in writing, is a series of logically connected passages; a passage developed in properly connected parts. Aristotle's definition, which makes it a discourse having its beginning and end in itself, is indistinct. Every passage would then be a period; and, on the other hand, a whole speech, a whole work, would be a period. Periods should not be too long, but it is impossible to fix the limits distinctly. Cicero's rule, that a period ought not to be longer than four hexameters, is as insufficient as the other, that it should be sufficiently short to be spoken at one breath, without exhaustion of the lungs. If it is properly constructed, the voice finds resting-places enough; and, if its parts are logically connected, it is not difficult to follow their connexion, and to form a distinct conception of the whole. In some languages, the rules for the construction of periods are stricter than in others: some allow great liberty. To the former belongs the English language; to the latter, the Greek, Latin and German. The genius of the German language, in particular, allows of very long and involved periods, in which perspicuity frequently suffers seriously; and it often happens that the whole meaning of a long sentence in that language depends upon the last word, so that we are kept in suspense as to the ideas conveyed, until the decisive word appears. The following rules should be observed in the construction of a period: 1. The chief idea must be made prominent, whilst the secondary ideas are presented with a force proportioned to their importance; 2. there should be a certain proportion between the length of the different members; 3. the subordinate parts should each serve for the more distinct explanation of the preceding, and should not be too much accumulated; 4. the ideas to be conveyed should be presented in a certain gradation, from the less distinct to the more distinct, from the weaker to the stronger, the less important to the more important, except the contrary effect is expressly intended. Important as the logical and grammatical arrangement of a period is, the musical and rythmical is by no means to be neglected. Much depends here upon tact, but study can much improve this. There is a harmony in language which, if it cannot convince, yet can strongly affect, can carry the reader along, or impress a sentiment indelibly. Yet undue refinement, an overlabored choice of phrase, is to be studiously avoided. The rhythm of a period (the *numerus*) corresponds to the metre in poetry, and is important for all languages, particularly for those which, like the Greek or German, have a real prosody. Only a few general rules can be given for rhythm: the ear of the writer or speaker must be his principal guide. The beginning of a period should be fitted to gain the attention of the hearer. Hence it is well to choose such words as fill the ear; e. g. in languages which have a prosody, the *first pæon* (— ◡◡◡), the *ionicus a majore* (— — ◡◡), the *third epitrites* (— — ◡ —), and some others. The conclusion ought to satisfy the ear by its firm and full sound. The following feet are therefore desirable: the *fourth pæon* (◡◡◡ —), the *amphibrachys* (◡ — ◡), the *antibacchius* (— — ◡), the *dactylus iambus* (— ⏑ ⏑ ⏑ —), the *ditrochaeus* (— ⏑ — ⏑), which it is best to have in one word, and the *dactylus trochaeus* (— ⏑ ⏑ — ⏑), which, however, on account of its hexametrical form, is to be used with great caution. The period should have a proper proportion of pauses, so as to be equally removed from total irregularity, and from a constantly-returning symmetry which approaches to metrical rhythm. The construction of sentences attained a perfection with the Greeks, which has not been reached by any other nation, for two reasons,—their deep and universal feeling of the beautiful, and the richness of their charming idiom in participles and well-sounding terminations. The Romans imitated the Greeks, but the example of Cicero is not to be closely followed, as he amplifies his phrases too much.

In physiology, *periods* designate the various stages in the developement and decay of the animal organization, which are distinguished by a marked character; as the period of childhood, of puberty, &c. *Periods* also denote, in medicine, those repetitions of phenomena which we observe in certain diseases, e. g. in intermittent fevers, the increase of the disorder in the evening, &c. Periodical diseases are such as, at certain times, make regular attacks, or are attended with regular aggravations. This property is very common, and there is hardly a disease in which it has not been observed in the case of some individual. On the contrary, there is no disease which always pursues its course periodically.

Periodicals, in the proper sense of the word, are all publications which appear at regular intervals; and in the wide sense which the word has now received, it may even be considered as embracing those publications which, as is not unfrequently the case in Germany, appear from time to time, yet neither at regular intervals nor in numbers of a fixed amount of pages (*Zwanglose Hefte*). The periodical press, comprising newspapers, reviews, magazines, annual registers, &c., devoted to religion, politics, the sciences, arts, amusements, husbandry, &c., is one of the most interesting and most momentous consequences of the invention of the art of printing. At first, slips of paper containing a few particulars, intended principally for the gratification of curiosity, periodicals have now become one of the most important parts of the machinery of society, particularly in England, France and the U. States. Without an acquaintance with this department of literature, the present state of knowledge and civilization cannot be understood, and the historian will find it essential to a comprehension of the great movements of our time. Châteaubriand threw Villèle from his saddle, by articles in the *Journal des Débats*; and when we see editors of newspapers drawing up a protest so noble and historical as that of the Paris editors on July 26, 1830, and immediately afterwards shedding their blood for the rights therein maintained; and find statesmen like Brougham, Mackintosh, Peel, contributing articles to English reviews,—we cannot be surprised at the importance of the periodical press. We have given, in the article *Newspapers*, a sketch of the history and present state of that branch of periodical literature. The first journal of the character of a review was the *Journal des Savants*, established in 1663. Its success gave rise to *Les Nouvelles de la République des Lettres*, by Bayle; *Le Mercure*, by Visé; *Le Journal de Trévoux*, set up by P. Catrou, a Jesuit; in Italy, to the *Giornale de' Literati*; in Germany, to the *Acta Eruditorum* (q. v.). In England, the first review of this sort was the Monthly, commenced in 1749, and still published. (For further information, see the article *Review*.) The utility of periodicals has been very great; they have spread knowledge through quarters to which the bulky productions of the sixteenth and seventeenth century never could have penetrated. The reviews, in particular, have done much to promote the cause of truth and just thinking. But the periodical press, like every thing else in the world, has its bad side as well as its good, and one of its bad consequences has been a taste for superficial accomplishment. Periodicals, however, have become a matter of necessity, as the circle of civilization has widened, as the various nations have become more and more interested in each other, and as the great interests of mankind have been more deeply investigated and more universally discussed. For a citizen of Athens, the market and the gymnasia may have afforded a sufficient supply of news to keep him acquainted with the events generally interesting to his community; the wits of Florence may have found the shop of Burchiello (q. v.) a sufficient centre of intelligence; but our times require much more regular, extensive and effectual means for the diffusion of information on the events and productions of the day, and for the discussion of the numberless im portant subjects which occupy the minds of men.

Periosteum. (See *Bone.*)

Peripatetic Philosophy. The philosophy of Aristotle (q. v.) received this name either from his custom of teaching while walking (περιπατειν), or from the place where it was taught—a walk planted with trees. We can give but a brief sketch of the system of this powerful mind. Philosophy was to Aristotle the science of knowledge. Direct knowledge, by which we know immediately the general and necessary, rests on experience. According to him, logic, as a preparatory science, as the organ of all science, has the precedence of all. Logic either treats of appearances, and is then called *dialectics;* or of truth, and is then called *analytics*. In his Physics, he opposes the two systems then prevailing (that of emanation, which taught that all things emanated from God; and the atomic, which explained the origin of things by the concourse of atoms, eternal, like God), and assumes the eternity of the world. According to him, the heavens are of a more perfect and divine nature than other bodies. In the centre of the heavens is the earth, round and stationary. The stars, like the sky, beings of a higher nature, but of grosser matter, move, though not of themselves, but by the impulse of the *primum mobile.* Every change presupposes a *substratum* (substance), that by which a thing becomes possible; a *form*, by which a thing becomes real; and *privation*, inasmuch as the existence of a certain form is founded on the exclusion of others. All change or motion takes place in regard to substance, quantity, quality and place. There are three kinds of substances—those alternately in motion and at rest, as the animals; those perpetually in motion, as the sky; and those eternally stationary. The last, in themselves immovable and imperishable, are the source and origin of all motion. Among them there must be one first being, unchangeable, which acts without the intervention of any other being. All that is proceeds from it; it is the most perfect intelligence—God. The immediate action of this first mover—happy in the contemplation of himself—extends only to the heavens; the other inferior spheres are moved by other incorporeal and eternal substances, which the popular belief adores as gods, and to which it attributes bodies, contrary to their nature. The soul is the principle of life in the organic body, and is inseparable from the body. As faculties of the soul, Aristotle enumerates the faculty of generation and nutrition; of sensation, memory and recollection; the faculty of thinking, or the understanding; and the faculty of desiring, which is divided into appetite and volition. The ethical principles of Aristotle have been often misunderstood, partly on account of the degeneracy of his school; and he has been considered a supporter of the philosophy whose principle is pleasure; but to Aristotle, the best and highest (i. e. that which is desirable for itself) is the happiness which originates from virtuous actions. Virtue, according to him, consists in acting according to nature: by the expression "according to nature," he means, keeping the mean between the two extremes of the too much and the too little. Thus valor, in his view the first of virtues, is a mean between cowardice and rashness; temperance is an observance of the mean in respect to sensual enjoyments. Human actions, to be called moral, must be independent of external motives; otherwise they are but phenomena, the laws of which belong to physics, and are therefore indifferent to the practical philosopher. Self-action, and consequently the power to act or not to act, to act in one way or another, is the condition of all morality. Perfect happiness can be attained only in political society or the state; but the best form of state polity must be determined by circumstances. The school of Aristotle (the peripatetic school) continued at Athens uninterruptedly till the time of Augustus. Among those who proceeded from it are Theophrastus, author of several works on natural history; Strato of Lampsacus, whose views are but imperfectly known to us from some fragments preserved by Cicero and Plutarch; and Demetrius Phalereus. (q. v.) No one of the philosophical schools of antiquity maintained its influence so long as the peripatetic. Even down to modern times, its principles served as the rule in philosophical inquiries, and some countries still honor Aristotle as an infallible master of wisdom. The Arabians did not first make him known to the philosophers of modern Europe, but they extended his authority. The acuteness and profoundness which appear in his works, his dogmatic tone, his subtile distinctions, and the technical language, first introduced by him into philosophy, pleased them more than Plato's philosophical doubts and allegorical language. But we find him in the Christian church as early as the time of the Arian controversy; and while the influence of Plato was diminished by the heresies of Platonizing teachers, that of Aristotle, which the commentaries of Boëthius on his translation of Aristotle's works contributed to extend, was continually increasing. (See *Scholastics.*) When the works of Aristotle again began to be read in the original language, a peripatetic sect, differing from the scholastic, arose, in the fifteenth and sixteenth centuries, which was divided into the Averroists and Alexandrians (so called, from celebrated commentators on Aristotle). To the former belonged Alex. Achillinus, Zimara and Cæsalpinus; to the latter, the famous Pomponatius and others.

Peripetia; an unexpected change, which takes place in the condition of the chief person of an epic or dramatic poem, a novel, &c. Aristotle gives, as an instance, the scene in Œdipus, in which the news intended to relieve the king's fears, and to cheer him, produces the contrary effect, by discovering to him his origin. Necessary as the *peripetia* is for giving interest to great compositions, a ludicrous effect is often produced by young poets heaping misfortunes upon their heroes, to surprise the reader with an unexpected deliverance. The Germans call such compositions *Rettungsstücke* (saving-pieces).

Periphery. (See *Circle.*)

Peripneumony. (See *Pneumony.*)

Peripteral Temple. (See *Architecture*, p. 341.)

Peristyle. (See *Architecture*, p. 341.)

Perizonius, James, a learned Dutch philologian of the seventeenth century, born at Damme in 1651, studied at Deventer and Leyden, and became professor of history, rhetoric and Greek, at the latter place, where he died in 1715. His historical and philological works are numerous. The principal are *Animadversiones Historicæ* (1685), a treasure of learning; *Origines Babylonicæ et Ægyptiacæ* (1711); editions of Ælian's *Various Histories*, of the *Minerva of Sanctius*, &c.

Perjury, by the common law of England, is a crime committed by one who, being lawfully required to depose the truth in any judicial proceeding, wilfully swears falsely in a point material to the question in dispute. It has, however, been held, that a man may be indicted for perjury for swearing that he *believed* a fact to be true, which he knew to be false. The common law takes no notice of any false swearing, but such as is committed in some court of justice, having power to administer the oath, or before some officer or magistrate invested with similar authority, in some proceeding relative to a civil suit or criminal prosecution; for the law esteems all other oaths unnecessary, at least, and hence will not punish the breach of them. Thus, if a person swears falsely in a voluntary affidavit in any extrajudicial matter, he is not liable to any punishment. By numerous statutes in England and America, the penalties of perjury have been extended to false oaths by electors, bankrupts, insolvent debtors, &c. By the English law, the evidence of one witness alone is not sufficient to convict on an indictment for perjury; in such case, there would be only one oath against another; but it is sufficient if corroborated by other independent evidence. Subornation of perjury is the offence of procuring a man to commit perjury. By the law of Moses (*Deuteronomy* xix, 19), if a man testify falsely against his brother, it shall be done unto him as he had thought to do against his brother. And this is the principle adopted in the laws of many of the states of modern Europe. By the law of the Twelve Tables, "*perjurii pœna divina, exitium; humana, dedecus.*" Gellius, xx. 1, mentions, that some persons who had perjured themselves, by giving false testimony, were thrown from the Tarpeian rock. The civil law punished perjury committed in swearing by the name of God, in civil cases, by infamy (*Digest*, lib. ii, tit. 4; *Code*, lib. xii. tit. 1); but the punishment of perjury committed in swearing by the safety of the emperor, was death (*Code*, iv. 1: 2); by the genius of the prince, beating and scourging (*Dig.* lib. xii, tit. 2, 13). The punishment of perjury, by the common law in England was, anciently, death; afterwards banishment, or cutting out the tongue; then forfeiture of goods. At the present time, it is fine, imprisonment, and pillory, at the discretion of the court, to which the statute Geo. II, c. 25 adds a power in the court to order the offender to be sent to the house of correction for a term not exceeding seven years, or to be transported for the same period. The offender is incapacitated from giving evidence in a court of justice; but a pardon will restore his competency. By the law of the U. States, the punishment on conviction for perjury committed in any cause depending in any of the courts of the U. States, or in any deposition taken in pursuance of the laws of the U. States, is imprisonment not above three years, and fine not exceeding $800, pillory one hour, and disqualification for being a witness until the judgment is reversed. By the capitularies of Charlemagne, and Louis *le Débonnaire*, perjury was punished by cutting off the hand. By the Napoleon code, perjury in criminal cases is punishable by confinement at hard labor for a limited time. If the party accused is sentenced to a severer punishment, the perjurer is to suffer the like. In cases of correctional or police jurisdiction, it is punishable by confinement. Perjury in civil suits, is punishable by civic degradation. By the Prussian code, promulgated by Frederic William in 1794, whoever, whether he appears as a party or as a witness, perjures himself, is to be excluded for ever from his employments, rights and civil profession, to undergo an ignominious exposition as a perjured person, or to be publicly declared such, and, in addition thereto, to be condemned to confinement from one to three years. If the perjury be with a view to profit the perjurer, he is to forfeit a sum quadruple of that which he endeavored to obtain. If the perjury is committed in a capital case, and an innocent person is, in consequence, condemned, the punishment of the perjurer is death; and in cases not capital, the punishment of the perjurer is to be proportioned to the crime of which the innocent person was accused and convicted. By the law of Spain (in 1804), perjury, in civil causes, is punishable with ten years' condemnation to the galleys; and in criminal cases, in which the punishment for the offence charged does not extend to death, public infamy and perpetual condemnation to the galleys. (Johnston's *Civil Law of Spain*, L. vii, tit. 17, lib. 8, Rec.)

Perkin Warbeck. (See *Warbeck*.)

Perkins, doctor Elisha, the inventor of the metallic tractors, was born at Norwich, Connecticut, in January, 1740, and was educated by his father, doctor Joseph Perkins, for the profession of medicine. He was indebted to nature for uncommon endowments, both bodily and mental. In person he was six feet high, and of remarkable symmetry. He possessed extraordinary ability to endure fatigue. His reputation and success as a physician were considerable, but he is principally known by his *metallic tractors*. These were formed by him from a composition which he discovered after numerous experiments with various kinds of metals, during several years, he having conceived the idea that metallic substances might have an influence on the nerves and muscles of animals, and be capable of being converted to useful purposes as external agents in medicine. They consisted of two instruments, one of the appearance of steel, the other of brass, and were about three inches in length, and pointed at one end. The manner in which they were applied was, by drawing the points over the affected parts, in a downward direction, for about twenty minutes each time. The complaints in which this operation was found most useful, were local inflammations in general, pains in the head, face, teeth, breast, side, stomach, back, rheumatism, &c. Doctor Perkins procured a patent for his discovery, and the success which it obtained was great, not only in this country, but on the other side of the Atlantic. The professors of three universities in America gave attestations in favor of its efficacy. In Copenhagen, twelve physicians and surgeons, chiefly professors and lecturers in the Royal Frederic's Hospital, commenced a course of experiments, accounts of which were published in an octavo volume. They introduced the term *Perkinism*, in honor of the discoverer, and asserted that it was of great importance to the physician. In London, a *Perkinian institution*, as it was called, was established, principally with the view of benefiting the poor by the use of the tractors; and, in a pamphlet giving an account of the institution, it was stated that the communications of cases were from disinterested and intelligent characters from almost every quarter of Great Britain, including professors, regular physicians, surgeons and clergymen. A computation of the cures said to have been effected, presents the number of one million five hundred thousand. It may be well deemed a matter of surprise, after what we have stated, that the tractors have sunk into oblivion; but such is the fact. During the prevalence of yellow fever in New York, in 1799, doctor Perkins went thither for the purpose of testing the merits of a highly antiseptic remedy which he had introduced into practice; but after about four weeks of unremitted assiduity in attending the sick, he took the disease himself, and died at the age of 59 years. He was a man of great liberality of character and of strict honor and integrity. In address and colloquial powers, few of his profession excelled him.

Permutations. (See *Combinations*.)

Pernambuco; the name generally given to the two cities of Olinda and Recife, in Brazil. The former contains 4000 inhabitants, and is the see of a bishop. It lies about three miles north-east of the latter, in lat. 8° S. It was formerly more populous and flourishing, but since its capture by the Dutch in 1640, its commerce and manufactures have deserted it for the latter. (See *Recife.*)

Péron, François, a distinguished French naturalist, born at Cerilly, in 1775, studied in the college at that place, and, in 1792, joined the army on the Rhine. Having been captured at Kaiserslautern, in about a year he was exchanged, and, having lost the sight of one eye, was discharged from the service, and returned to Cerilly, in August, 1795. He then obtained admission into the school of medicine at Paris, where he applied himself closely to his studies, and also attended the lectures of the museum of natural history. When the expedition to the South seas, under captain Baudin, had been projected, Péron, with some difficulty, obtained the situation of zoölogist. The vessels appointed for this service, the Geographer and the Naturalist, sailed from Havre, October 19, 1800, and returned to France in April, 1804. They had visited New Holland, and many of the Australian and Polynesian islands; and during the whole of the voyage, Péron seized every opportunity for augmenting the stores of science, by making collections and observations. After his return, he was employed, in conjunction with captain Freycinet, to draw up an account of the voyage, and, with M. Le Sueur, to describe the new objects of natural history which had been procured. Péron died December 14, 1810. His works are, *Observations sur l'Anthropologie;* and *Voyage de Découvertes aux Terres Australes* (1807—1816, 3 vols., 4to.); an unfinished History of the Medusæ, fragments of which have been published, and several valuable memoirs on subjects of natural history.

Pérouse, La. (See *Lapérouse.*)

Perpendicular, in geometry; a line falling directly on another line, so as to make equal angles on each side; called also a *normal line.* These lines may be straight lines or curves. A plane is perpendicular to another plane, if a line drawn on one of them, perpendicular to the line of intersection, forms right angles with a perpendicular line on the other plane drawn to the same point. (See *Plumb Line.*) A vertical line is one perpendicular to a horizontal line (a line parallel to the surface of calm water), so called because it passes from our vertex or zenith (q. v.) down to the nadir (q. v.), so that the vertical line is a particular kind of perpendicular line.

Perpetual Motion; a motion which is supplied and renewed from itself, without the intervention of external causes. The problem of a perpetual motion consists in the inventing of a machine which has the principle of its motion within itself; and numberless schemes have been proposed for its solution. The difficulty is, that the resistance of the air, the friction of the parts of the machine, &c., necessarily retard, and finally stop, the motions of machines, and therefore seem to render perpetual motion an impossibility. Attempts have recently been made to produce a *perpetuum mobile*, by means of galvanism; a metallic bar, being placed between two dry galvanic columns, is alternately attracted by each column.

Perpetuity, in the doctrine of annuities, is the number of years in which the simple interest of any principal sum will amount to the same as the principal itself; or it is the number of years' purchase to be given for an annuity which is to continue for ever; and it is found by dividing £100 by the rate of interest agreed upon; thus, allowing 5 per cent., the perpetuity is $\frac{\pounds 100}{5} = 20$.

Perpignan; a city of France, capital of East Pyrenees, about a league from the Mediterranean sea; lon. 2° 54′ E.; lat. 42° 42′ N.; population, 15,350. It is a place of strength, and accounted one of the keys of the kingdom, on the side of Spain. It is mostly ill built and gloomy. The trade consists in corn, wool, iron and wine. The manufactures are woollen and silk.

Perrault. Of four brothers of this name, who lived during the reign of Louis XIV, the most known are *Claude* (born 1613, died 1688), a physician, naturalist and architect, from whose designs the celebrated *façade* of the Louvre (q. v.) and the observatory at Paris were built; and *Charles* (born 1633, died 1703), a man of erudition, but of little taste, whose verses have not outlived his day. Colbert availed himself of their assistance in founding the French academy of art, of which Charles was the librarian. His poem *Le Siècle de Louis le Grand*, which he read before the academy in 1687, gave rise to the famous controversy on the comparative merits of the ancients and moderns. In his *Parallèle des Anciens et Modernes* (1688—96), in the form of a dialogue, he maintains that the moderns have carried art and science, which were in a state of infancy among the ancients, to the highest perfection, and have excelled them in their works. This opinion was warmly attacked by Boileau, and zealously defended by Fontenelle and Hudart de la Motte. Perrault was also author of *Les*

Hommes illustres de France (1696—1700). The *Contes de ma Mère l'Oye* (Tales of Mother Goose), of which he is the reputed author, has procured for him, but perhaps unjustly, the title of "inventor of the French Fairy Tales." (See *Fairies.*)

Perron, Anquetil du. (See *Anquetil du Perron*, and *Zendavesta.*)

Perry, Oliver. (See *Appendix* to this vol.)

Perry. (See *Pear.*)

Persecution of Christians. The persecutions which the early Christians underwent were a natural consequence of the anxiety which the free spirit of the Christian doctrine and worship, so opposite to the religious institutions previously existing, excited among Jews and heathens. As long as the Jewish state continued, the Christian communities established within its limits had little reason to expect toleration, as even the founder of their religion had been regarded as a stirrer up of sedition, on account of his opposition to the ordinances of the Jewish church, which were zealously defended by the Pharisees, who formed the ruling party; and the sanhedrim could not forgive his followers for regarding him as the true Messiah. But, as this body had not power to carry its wishes into effect, and the Christians abstained from open violation of the public peace, there was no general persecution of them in Palestine under the sanction of the Roman authorities; and only some of the heads of the congregations at Jerusalem, such as Stephen and the apostles James the elder and James the younger, suffered martyrdom,—the former forty-three, the latter sixty-three years after Christ. But the Jews in the towns of the Roman empire, where they had made settlements, and where Christian congregations soon sprung up, excited against them the suspicions of the magistrates, who, at first, may have considered the Christians as an unimportant Jewish sect, or have tolerated the new worship with less reluctance, since the introduction of a new divinity had little in it to startle the mind of a heathen. Nero, indeed, ascribed to the Christians the conflagration of the city of Rome kindled by himself, and, in the year 64, subjected them to a dreadful persecution, in which the apostles Peter and Paul suffered; but this was more an exercise of imperial tyranny than of policy, or an intolerant spirit. This *first persecution* does not appear to have extended far beyond Rome. There arose, however, a *second*, in the year 95, because Domitian, deceived by the royal title which the Christians gave to Jesus, after fruitless inquiries for the supposed relations of Jesus and pretenders to the crown, caused many of his followers, particularly in Asia Minor, to be banished, or put to death. What is called the *third persecution* of the Christians, took place in the time of Trajan, who issued an edict against secret societies, which was followed, in 105, by a prohibition of their meetings, and the punishment of some refractory individuals, because the Roman proconsuls (for example, Pliny the younger, in Bithynia) considered the refusal of the Christians to pay the usual homage to the image of the emperor as deserving of punishment; and their suspicions were awakened by the independent character of the followers of the new faith, and their deviation from the national customs. Charges of outrage and sedition, principally excited and spread abroad by the Jews, increased the unfavorable disposition of the heathens towards the Christians. It was said that they were accustomed, in their assemblies, to eat human flesh (a misconception of the eucharist), and to practise shameful vices, and not only to aim at the destruction of the old religion, but at the overthrow of the Roman imperial throne, and the foundation of a new monarchy. These reports easily grew out of their peculiar habits. The obscurity in which they enveloped themselves, on account of their well-founded apprehensions; the spirit of their associations, which kept them separate from the rest of the world; their secret meetings for religious exercises, often held by night,—were sufficient to furnish materials for suspicion: and the extravagant expectations which many among them entertained of the near return of Christ, their zeal against heathen manners and customs, and their open opposition to the worship of idols, from which they annually converted thousands, excited the heathen priests and magistrates against all that bore the name of Christian. Yet the followers of the new religion, being almost entirely confined to the lower class, and being split into a variety of sects, chiefly Gnostics, which were continually increasing, were objects rather of contempt than of fear; and, next to the protection of an overruling Providence, it is principally owing to this circumstance that, notwithstanding several occasions for new persecutions, and notwithstanding the zeal with which their doctrines were assailed by heathen philosophers (as, for example, Celsus, who wrote against Christianity about 140), they enjoyed above fifty years of undisturbed tranquillity, until the fourth persecution so called. In Asia Minor, they were violently assailed, about the year 160, by the heathen populace; and the Christian apologist Justin Martyr, and the bishop of Smyrna, Polycarp, were put to death. About the year 177, Marcus Aurelius treated the new congregations in Gaul, at Vienne and Lyons, with great severity, and many Christians suffered martyrdom (*fourth persecution*). About the end of the second century, a strong disposition was manifested to unite the congregations, which had been hitherto independent of one another, into one church. The spiritual teachers, too, growing bolder with the increase of their distinctions and privileges, showed a disposition to grasp more authority, and often came into collision with the civil magistrates; and the Christians, having become numerous and powerful, openly derided the pagan worship, now sinking into decline. These circumstances led to wild outbreaks of the heathen populace, bent on revenging the insults offered to their gods (about 192), and a dreadful slaughter ensued. The emperor Septimius Severus, moreover, in 202, forbade the accession of new converts to the Jewish and Christian religions, and this decree was followed by still severer oppressions of the Christians. Dreadful tortures were employed by the Roman magistrates, at that time, in order to compel the Christians, of every age and sex, to deny their religion. Many yielded to the storm, with the intention of returning to Christianity in more peaceful times; yet not a few preferred death to apostasy, and gained the martyr's crown, and the admiration of Christian posterity. (See *Martyrs*, and *Saints*.) After this *fifth persecution*, the Christians enjoyed toleration and peace from 211, under Caracalla, Macrinus and Heliogabalus, and, under Alexander Severus, even privileges and distinction. The restraints imposed upon them by the emperor Maximian (235) received the name of the *sixth persecution*, although, properly speaking, only Christian teachers and clergymen were oppressed by this emperor; but the oppressions which many of the congregations underwent were inflicted without his command. Private hatred, in fact, often led to outrages against the Christians, and excited the populace to assail them. This happened at Alexandria, in the latter years of the reign of the emperor Philip the Arabian, who was, personally, well-affected towards them. But his successor, Decius, began his reign (249) with a persecution of the Christians (the *seventh*) throughout his kingdom. The universality of this persecution, and the perseverance and cruelty with which it was pursued, made it plain that the emperor's purpose was to extirpate them entirely, and induced many to fall from their faith. Fortunately, however, from the rapid changes in the government at this period, the persecuting policy was not very steadily followed. Valerian, in 257, put to death few but the clergy (*eighth persecution*); and the execution of the edict of Aurelian against the Christians (274, the *ninth persecution*, as it was called) was prevented by his violent death. A severe persecution (the *tenth*) took place under the emperor Diocletian, at the instigation of his ministers, Galerius and other enemies of the Christians, in 303. Throughout the Roman empire, their churches were destroyed, their sacred books collected and burned, and all imaginable means of inhuman violence employed to induce them to renounce their faith. As they were accused, moreover, of a rebellious spirit, and of kindling a conflagration in the royal palace at Nicomedia, thousands suffered martyrdom. Constantius Chlorus, a sovereign favorable to them, was unable to protect them entirely in his Gallic and British provinces; and in Greece, Illyria, Italy and Spain, Galerius, Maximinus and Licinius pursued them with imprisonments and executions, principally directed against the clergy, till 310. These were the last oppressions of the Christians under the Roman government. Constantine the Great (312 and 313) restored to the Christians full liberty, and the use of their churches and goods; and his conversion to Christianity made it the established religion in the Roman empire. This religion afterwards experienced oppression without the limits of the Roman empire; for instance, in 343 and 414 in Persia, and from 437, with little interruption, till the commencement of the sixth century, in the African kingdom of the Vandals; but the efforts of some Roman emperors favorable to heathenism, as Julian and Eugenius, for the restoration of the pagan worship in the Roman empire, were more prejudicial to themselves than to the Christians. After the establishment of islamism, the caliphs in Asia and Africa labored, with success, for the extirpation of Christianity, and spared only particular schismatic sects, which still enjoy, under the protection of the Mohammedans, the free exercise of their religion. Christians themselves, after it had become a crime to be a heretic (see *Heretic*, and *Inquisition*), persecuted one another most bitterly; and the outrages which the early Christians had suffered from the heathens were tolerable, compared to the religious wars which they waged against each other in the middle ages, and to the sufferings inflicted on *heretics*, so called, by the inquisition, and by fanatical princes, even to the eighteenth century. But, as heathen Rome could not stop the spread of Christianity, so Protestantism, in later times, rooted itself the more firmly in proportion to the tempests which assailed it; for the direct tendency of persecution is to awaken a spirit of heroic resistance, and a zeal to make sacrifices for the cause of truth.

Persephone. (See *Proserpine.*)

Persepolis. In a northern direction from the Persian capital of Shiraz are the ruins of ancient structures of different ages, among which are the only remains of ancient Persian architecture, belonging to the most flourishing period of that powerful nation. There are other architectural remains, with inscriptions, belonging to the time of the modern Persian empire, which originated in the third century of the Christian era, out of the Parthian empire. (See *Parthians.*) These latter remains lie about four or five miles from the ruins of Persepolis proper, and consist partly of works of sculpture, partly of inscriptions in the ancient Pehlvi language, cut in the rocks. They are called, by the Arabs, *Nakshi Rustam* (the image of Rustam) because they were regarded as intended to commemorate the deeds of this ancient hero; but, according to De Sacy's satisfactory explanation, they relate to the kings of the modern Persian race (the Sassanides). (See *Persia.*) Many inscriptions in Arabic, the later Persian, and other languages, were put here in the century after Mohammed. The ancient Persian monuments differ essentially from all the rest of the ruins. These are the ruins of the proper palace of Persepolis, called, by the Arabs, *Chilminar*, i. e. the *forty* (used indefinitely to signify many) *columns*, with two tombs near it; four tombs towards the north-east, near Nakshi Rustam, called the *tombs of the kings*, with the ruins of some other ancient buildings; and lastly many remains and columns of unfinished tombs between Chilminar and Nakshi Rustam. All these remains are represented in Chardin's Travels through Persia, and in Niebuhr's Travels to Arabia. The chief monument is Chilminar; undoubtedly the remains of a great and magnificent structure, encircled in the rear by rocky mountains, which open in the form of a crescent, and consisting of three divisions, one above the other, and built entirely of the most beautiful gray marble, the immense blocks of which are put together with admirable art, without mortar. Marble stairs, so wide and easy of ascent, that ten horsemen can ride up them abreast, lead from the lower divisions to the higher. At the entrance of the portico, to which the steps belonging to the first division lead, fabulous animals are seen, wrought in the still remaining pilasters, as if to guard the palace. Similar steps lead to the second division, to a colonnade, several columns of which still exist, fifty feet high, and of such a circumference that three men can hardly clasp them. This colonnade leads to several detached buildings, of which the largest stands in the same division; the others, farther back, form the third division. These houses contain a number of chambers, of different sizes, and seem to have been real dwellings. They are ornamented with a number of images representing processions, people of all ranks, combats of fabulous animals with one another and with men. In the wall of the rock against which the building stands, are two large tombs. At a considerable height from the ground, a *façade* is hewn in the rock itself, behind which is a chamber that can be entered only by a passage broken through, as no regular entrance has been found. Beneath, the rock is cut perpendicularly, in order to make the monument entirely inaccessible. The best representation of the ruins is to be found in Niebuhr. The result of the most recent investigations, compared with the information contained in the ancient writers, is, that the monuments of Persepolis are actually of Persian origin, and the tombs, those of Persian kings, belonging to the buildings called *Chilminar*, with which they are connected by subterranean passages. Though the buildings belong to Persian antiquities, yet it is probable that the Persians themselves did not construct them, but caused them to be erected by others; and their truly Asiatic character affords foundation for the supposition that they were built in imitation of the architecture of the Medes (to whom the Persians were indebted, in general, for their civilization), under the direction of the priests. The ruins of Persepolis proper are most probably not all of the same age, but the work of several Persian kings. Persepolis was not destined for a temple, for the Persians, professing the religion of the Magians, had no temples; nor was it a palace of the kings, because, though it may have originated, as most of the capitals of Asia did, from the residence of the kings of the first conquerors, it soon ceased to be their actual abode. But the ideas of country, power and religion attached to it, made it the receptacle of the royal dead, and the sanctuary of the people. The various images represent the whole private life of the king, as it was strictly prescribed by the Magians. Immediately after their accession to the throne, the Persian kings proceeded to Persepolis to be invested with the garment of Cyrus, and, at certain times, visited this holy place to sacrifice on the summits of the mountains. After the death of a king, his apparel, utensils, and even his treasures, were preserved here, as the tomb of the king was considered a fit dwelling to be provided with all necessaries. For this reason, not only numerous guards protected the palace, but also the most important officers of the deceased king, perhaps even his wives, were obliged to remain near the tomb. Alexander, after overcoming Darius, gratified his revenge by the destruction of Persepolis. (See *Alexander.*) The mechanical execution of these monuments is very perfect, and no country on earth, Egypt only, perhaps, excepted, can show such masonry as these ruins. The character of this architecture, however, is totally opposite to that of the Egyptian monuments. Surprising assiduity and minuteness of execution are shown in the ornamental work. The inscriptions on these ruins are in a threefold character—comprised under the general name of *arrow-headed* character,—and also in three different languages. The oldest character, undoubtedly, consisting of letters, is, according to the unanimous opinion of critics, in the Zend language, a sacred idiom of the Magians: the characters of the second kind seem to belong to the Pehlvi language; and the third are, perhaps, Assyrian or Babylonian. Grotefend and Lichtenstein have been particularly successful in the explanation of these characters. Drawings, still more exact than those of captain Keppel, and accounts of newly discovered bass-reliefs in Persepolis, have been given by Jam. Edw. Alexander, in his Travels from India to England, through Persia, Asia Minor, &c., 1825—1826 (London, 1827, 4to.)

Perseus; son of Danaë (q. v.) and Jupiter. Polydectes, king of Seriphos, an island in the Archipelago, who had received him with his mother, soon wished to remove from his court the young and daring hero. Under pretence, therefore, of suing for the daughter of Œnomaus, he requested from his friends presents of rarities to make his wedding feast more splendid. Perseus promised him the head of the Gorgon (Medusa). Beyond the ocean, just on the borders of eternal night, dwelt the formidable Gorgon race, with serpent-locks and serpent-girdles, of whom Medusa alone was mortal. Conducted by Mercury and Minerva, he first went to the three Graiæ, on the western coast of the ocean; who had but one eye and one tooth, in common. Perseus got possession of these, and promised to restore them on condition that they would bring him to the nymphs, who kept the instruments which he needed in this enterprise—the talaria, or winged shoes, the bag, and the helmet of Pluto, which made its wearer invisible. They agreed to the condition, and Perseus obtained from the nymphs what he desired. Other accounts say, that he was furnished by Mercury and Vulcan. Led by Mercury and Minerva, he reached the slumbering Gorgons. With his face averted, he approached the monsters, whose look transformed the spectator into stone, saw the head of Medusa by reflection in his brazen shield, and cut it off. From the drops of blood sprang Pegasus and Chrysaor. With the head in his bag, he escaped from the pursuing sisters, by means of the helmet of Pluto. On the winged sandals of Mercury, he now hovered over various regions, seeking adventures. He went to king Atlas, who had been informed by an oracle, that a son of Jupiter would strip his garden of the golden apples which it bore; and therefore refused to Perseus the rites of hospitality, who, presenting to his eyes the Gorgon's head, changed him into a rock, which was doomed to support the heavens. He then delivered Andromeda. (q. v.) By her he became the father of Perses, whom he left in the care of his grandfather Cepheus, and returned with Andromeda to Seriphos. Here he found his mother at the altar of Minerva, to which she had fled with his foster-father Dictys, to escape the violence of Polydectes. He transformed the latter, with all his associates, into stone; and, having placed Dictys upon the throne of Seriphos, he returned to Mercury the talaria, the bag and the helmet, and gave to Minerva the Gorgon's head, which she fixed in the centre of her shield, or, according to some, on her breastplate. Perseus then went to Argos, with Danaë and Andromeda, to visit his grandfather Acrisius. To avoid the predictions of an oracle, Acrisius had fled to Thessaly; but he could not escape his destiny; for Perseus followed him there, and killed him accidentally with the discus, of which he was the inventor. In consequence of this event, he refused to ascend the throne of Argos, which had thus fallen to him, and exchanged it for Tirynthus, the kingdom of Megapenthes. Here he founded Mycenæ. Besides Perses, the founder of the Persian nation, Andromeda also became the mother of Alcæus, Sthenelus, Eleus, Mestor, Electryon, and a daughter named Gorgophone. After his death, Perseus was worshipped as a hero, and placed among the stars. The fable of Perseus has been, by some writers, derived from Persia, and been interpreted as typical of the introduction of agriculture from Upper Asia or Persia into Greece. He is the Bersin of the Shahnameh.

Persia (*Iran*, *Chahistan*); a country of Asia, between 25° and 40° N. lat., and 44° and 64° E. lon.; bounded N. by Russia, the Caspian sea and Independent Tartary, W. by Turkey, S. by the Persian gulf, and E. by Beloochistan and Afghanistan; comprising about 390,000 square miles, with a population of about 6,500,000. The centre of Persia is an elevated plain, containing several deserts of sand. The northern provinces, in which rises the chain of the Ararat, and the western parts of the country, are mountainous. To the east of the Tigris, and nearly parallel with it, is a granitic ridge, called by the ancients *Zagros*; and also parallel with the same is the Orontes (now *Elwind*), which separates into two branches, one of which, to the west of the Caspian sea, is connected with the Elbour, or the Caspian chain, a prolongation of the Taurus. The country on the Caspian is lower than the coasts on the ocean, and is surrounded by a semicircular barrier of mountains, which are a continuation of the Taurus and Caucasus, and present a much steeper descent towards the Caspian than on the land side. In the southern part of Persia, the elevation of the country is more gradual than in the north and west; and along the Persian gulf, there is a narrow strip of low land, which is uninhabitable in summer on account of the heat. As we recede from the sea, and approach the mountains, the climate becomes cooler. The elevated northern and western regions are temperate, and, in winter, cold. Earthquakes are not uncommon: in 1824, a shock, which continued six days and six nights, destroyed the city of Shiraz (50,000 inhabitants) and Kazroun; mountains disappeared without leaving a trace behind. It is remarkable that so extensive a country has no considerable river, although it contains many high mountains. There are a few small rivers, that lose themselves in the sand, or are consumed by canals, which serve the purpose of irrigation. Persia, however, contains several lakes, among which are that of Erivan and Bakteghian or Salt lake. All the water is impregnated with salt; the lakes are all saline, and wherever water has stood in winter, the soil is found to have become salt. The extensive plains are, many of them, covered with water in winter, and in summer present a bare, hot surface, coated with saline matter. The mountains are naked; the hills dry and barren On account of the scarcity of water, but a small portion of the plains is cultivated the remainder is either naked or merely bears some succulent plants, which soon wither. There are, however, some fertile tracts. The country supplies excellent horses and asses, dromedaries, cattle, broad-tailed sheep, silk, grain, rice, pulse, melons, sesame, saffron, madder, hemp, flax, tobacco, poppies, liquorice, sugar-cane, date-palms, cassia, mastic, rich wines, cotton, manna, gum tragacanth, senna, galbanum, assafœtida, rhubarb, all the fruits of the temperate zone, and fine tropical fruits, gall-nuts, copper, iron, lead, saltpetre, sulphur, salt, &c. The inhabitants are partly Tadshiks, consisting of a mixed race of Parsee, Arabic, &c., origin, Parsees, or fire-worshippers and Armenians; and partly nomads, among whom the Curds are the principal nation. The Tadshiks (modern Persians) are superior to the Ottomans in civilization, and manifest a strong passion for the arts and sciences. They are Mohammedans, of the sect of Ali, or Shiites. A peculiar Mohammedan sect, the Sabians (q. v.), worship the cross, have a sort of baptism, and call themselves disciples of St. John. The Ishmaelites (q. v.) also form a distinct sect. The Parsees are Guebers (q. v.), of the philosophical sect of Sophis. (See *Sophis.*) Jews and Christians are tolerated in Persia. The Persians are distinguished for their skill in dyeing, and in silk and woollen manufactures. They manufacture shagreen, morocco, work in gold and silver to great perfection, and make excellent sword blades, and a great number of articles of copper ware. In agriculture they make great use of artificial irrigation, which is, at present, a monopoly of the government. The commerce, which is considerable, is chiefly carried on by caravans to India, Turkey and Arabia. The navigation of the Persian gulf is mostly in the hands of foreigners. The navigation of the Caspian sea is open to the Russians and Persians; but the latter, by the terms of the treaty of 1828, are excluded from maintaining ships of war in its waters. Arts and sciences are held in esteem, but are by no means in a flourishing condition. The study of the Koran, divination, astrology, a sort of ethics, medicine and poetry, are the chief departments of education. The style of architecture is simple, sculpture almost unknown, the music detestable. The government is an absolute despotism; at the head of it is the shah, with unlimited power. Jaubert estimated his income at $10,000,000. The twelve provinces into which the kingdom is divided are governed by khans. The nomadic tribes enjoy a sort of independence under their chiefs, and form the main body of the military force. Abbas Mirza, the heir apparent, has endeavored to form troops with the European discipline. Persia has no naval force, owing partly to a want of ship timber. The largest town is Ispahan (q. v.), formerly one of the principal cities of Asia, now much reduced. The capital is Teheran (50,000 inhabitants in winter; 10,000 in summer.)

History. The history of Persia first emerges from the obscurity of antiquity with Cyrus. The dynasty of the Mahabads is mentioned by Oriental writers as the first. It was followed by that of the Pishdadians (coeval with our Assyrian empire). After the Pishdadians, the Kajanides ruled for 718 years. Gustasp (Hystaspes), the Median Cyaxares, or his contemporary, under whom Zerdusht (Zoroaster) lived, belongs to the uncertain time before Cyrus. With Cyrus (q. v.), 559—529 B. C., began the period of Persian power in the West. By uniting the Persians and Medes under his sceptre, he made them the ruling nation in Western Asia; he conquered Crœsus, took Babylon, and reduced Asia Minor. He was succeeded by his son Cambyses (529—522), who conquered Tyre, Cyprus and Egypt. After him, a Magian ruled for a short time, who gave himself out as Smerdis, brother of Cambyses. He was dethroned, and Darius Hystaspes (q. v.) obtained the crown by lot or the choice of his colleagues (521—487 B. C.). He reduced the revolted kingdom of Babylon, and subdued Thrace, Macedonia, (512 B. C.), and a small part of India; but his attempt to conquer the Scythians beyond the Danube was unsuccessful. He reduced the Greek colonies in Asia Minor, which had attempted to shake off the Persian yoke (501 B. C.); but he was unfortunate in his war against the European Greeks, and Egypt revolted from him. His son Xerxes (487 to 467 B. C.) effected the submission of Egypt, but was defeated by the Greeks on the field of Marathon and at Salamis, and was obliged to defend himself against their attacks in a disastrous war. Under Artaxerxes Longimanus, the *Ahasuerus* of the Scriptures (until 425 B. C.), the first symptoms of decline became visible. Egypt again revolted, and was again conquered, after a bloody struggle. The Greek war terminated disadvantageously, in 449 B. C. (See *Cimon.*) Megabyzus excited a dangerous insurrection. The weak king was governed by his mother and wife. The next changes of government were rapid and violent. Xerxes II, his only legitimate son, was murdered, after a reign of forty-five days, by his natural brother Sogdianus, who suffered the same fate, six months afterwards, by the hands of another illegitimate son of Artaxerxes,—Ochus, who assumed the name of Darius II, and reigned until 404 B. C., under the influence of his wife Parysatis. The revolts of his satraps hastened the decline of the empire, and the Persians were obliged to acknowledge independent kings in Egypt. But the internal troubles in Greece, of which the Persians artfully took advantage, saved them, for a time, from a united attack by the Greeks. Artaxerxes II, Memnon, or Mnemon (until 361 B. C.), was entirely under the influence of his mother, Parysatis. His brother Cyrus, supported by 10,000 Greeks under Xenophon (q. v.), attempted to dethrone him (400 B. C.), but was defeated and killed. Domestic dissensions obliged the Lacedæmonians to abandon their advantages in Asia Minor, and to conclude the disadvantageous peace of Antalcidas (387 B. C.). Artaxerxes III, Ochus (until 338 B. C.), son of Mnemon, secured his throne by putting to death his numerous brothers. He recovered Egypt (350 B. C.); but his eunuch, Bagoas, poisoned him on account of his cruelty, successively murdered all his sons, and gave the crown to Darius Codomannus (q. v.), a prince of the blood, who was conquered by Alexander in three decisive actions, on the Granicus, at Issus and Gaugamela, and lost his life (330 B. C.); after which Alexander made himself master of the whole empire (329 B. C.). On the dissolution of the Macedonian empire, after the death of Alexander (323), the Seleucides (see *Seleucus*) ruled over Persia until 246 B. C. They were succeeded by the Arsacides, who founded the empire of the Parthians, which existed until 229 A. D. Ardshir Babekan (Artaxerxes) then obtained the sovereignty of Central Asia, and left it to his descendants, the Sassanides, who ruled 407 years. With them begins, according to Hammer (q. v.), the romantic character of Persian chivalry; and the six most renowned rulers of this dynasty, among whom are Behramgur, Chosroes, Parwis, and Nushirvan, are the subjects of Persian romances. Ardshir, son of Sassan, ruled from 218 to 241. The wars which he carried on with the Romans were continued under his successor, Shapur (Sapor I, until 271), against Gordian and Valerian (the latter of whom fell into the hands of Sapor, and was treated in a most revolting manner), and were not terminated until the peace of king Narses with Diocletian (303). When Sapor the Great (from 309 to 380) had become of full age, the empire again recovered strength. He punished the Arabs for their incursions,and took the king of Yemen prisoner, and demanded from the emperor of Constantinople the cession of all the country to the Strymon, as Ardshir had once done. Constantine the Great, Constantine II and Julian resisted his demands; but Jovian purchased peace by a cession of the five provinces in question and the fortress of Nisibis. Sapor also extended his conquests into Tartary and India. War and peace successively followed, without any important events, after the death of Sapor. Under Artaxerxes II (until 383), Sapor III (until 388), and Vararanes IV (until 399), the empire flourished. Arabs, Huns and Turks successively appear on the field, as allies or enemies of Persia. Yezdegerd I (until 420), a friend of the Christians, conquered Armenia in 412. In the year 420, Vararanes V ascended the throne by the aid of the Arabs. He was victorious against Theodosius II, defeated the Huns who invaded his empire, and conquered the kingdom of Yemen. He was succeeded by Vararanes VI (until 457) and Hormisdas III. In the year 457, Firus (Pheroses) ascended the throne by the assistance of the Huns, but afterwards made war against them, and lost his life in battle in 483. Valens, or Balash (from 488 to 491) was stripped of a part of his territories by the Huns, and obliged to pay them a tribute for two years. The Sassanides, however, soon regained their greatness and power. Cobad (until 531) subdued the Huns; and, though he had recovered his throne, in 498, by their assistance, yet, at a later period, he waged a successful war against them, against Athanasius, the Indians, and Justinian I. His youngest son and successor, Chosrou Anushirvan (from 531 to 579) was distinguished for his uncommon wisdom and valor. Under him the Persian empire extended from the Mediterranean to the Indus, from the Iaxartes to Arabia and the confines of Egypt. He waged successful wars with the Indians and Turks, with Justinian and Tiberius, and the Arabs, whom he delivered from the oppression of petty tyrants, and suppressed the rebellions of his brother and his son. The Lazians in Colchis, wearied with the Greek oppression, submitted themselves to him; but, when he attempted to transfer them into the interior of Persia, they again placed themselves under the dominion of Justinian, whose arms were now victorious. Anushirvan died of grief during the negotiations for peace. War continued under Hormuz (Hormisdas IV, from 579 to 591) until the reign of Chosrou II (until 628), under whom the Persian power reached its highest pitch. By successful wars he extended his conquests, on the one side to Chalcedon (616), on the other over Egypt to Lybia and Æthiopia, and finally to Yemen. But the fortune of war was suddenly changed by the victorious arms of the emperor Heraclius. Chosrou lost all his conquests, and his own son Sirhes made him prisoner, and put him to death (628). The decline of Persia was hastened by continued domestic feuds. Sirhes, or Kabad Shirujeh, was murdered in the same year. His son Ardshir (Artaxerxes) III, but seven years old, succeeded him, and was murdered, in 629, by his general Serbas (Sheheriar). The chief Persians prevented Serbas from ascending the throne; and, after numerous revolutions, succeeding each other so rapidly that the historians have confounded the names, Yezdegerd III, a nephew of Chosrou, ascended the throne in 632, at the age of sixteen. He was attacked by caliph Omar, in 636, and Persia became a prey to the Arabs and Turks. Yezdegerd lost his life in 651.—With the conquest of Persia by the caliphs begins the history of the modern Persian empire. The dominion of the Arabs (see *Caliph*) lasted 585 years, from 636 to 1220. As some of the Arab governors made themselves independent, and Persian and Turkish princes possessed themselves of single provinces, Persia continued to be divided into numerous petty states. Among the principal dynasties were, in the north and north-east, 1. the Turkish house of the Thaheridis in Khorasan, from 820 to 872; 2. the Persian dynasty of the Soffarides, which dethroned the one last named, and ruled over Khorasan and Farsistan until 902; 3. the Samanide dynasty, which established its independence on Khorasan in 874, under Ahmed, in the province Mavaralnar, and lasted to 999. Ishmael, Ahmed's son, dethroned the Soffarides, and became powerful; and under his descendants originated, 4. the Gaznavides, in 977, when Sebektechin, a Turkish slave and governor of the Samanides at Gazna and Khorasan, made himself independent at Gazna. His son Mahmood subdued, in 999, Khorasan, and, in 1012, Farsistan, and thus put an end to the dominion of the Samanides. He subsequently conquered Irak Agemi (1017) from the Bouides, and even extended his conquests into India. But his son Masud was stripped of Irak Agemi and Khorasan by the Seljooks (from 1037 to 1044); and the Gaznavides, weakened by domestic divisions, became, under Malek Shah (1182), a prey to the Gourides. 5. The sultans of Gour (Gourides) became powerful, in 1150, by means of Aladdin Hosain, but lost their ascendency, after several great reigns, partly by the encroachments of the princes of Khowaresm, and partly by domestic dissensions. 6. The dynasty of the Khowaresmian shahs (from 1097 to 1230) was founded by Aziz, governor of the Seljooks in Khowaresm, or Karasm, where he rendered himself independent. Tagash (1192) destroyed the empire of the Seljooks, and took Khorasan from the Gourides. His son Mohammed conquered Mavaralnar, subdued the Gourides and Gazna, and occupied the greater part of Persia. But, in 1220, the great khan of the Monguls (q. v.), Gengis Khan (q.v.), and his heroic son Gelaleddin Mankbern, deprived him of his dominions; and he died in 1230, after a struggle of ten years, in a lonely hut in the mountains of Curdistan. In western and north-eastern Persia reigned, 7. Mardawig, a Persian warrior, who founded a kingdom at Dilem, in 928, which soon extended over Ispahan, but was destroyed by the Bouides. 8. The Bouides (sons of Bouia, a poor fisherman, who derived his origin from the Sassanides), by their valor and prudence, extended their sway over the greater part of Persia, and, in 945, even over Bagdad. They were chiefly distinguished for their virtues and love of science, and maintained themselves until 1056, when Malek Rahjm was obliged to yield to the Seljooks. 9. The Seljooks, a Turkish dynasty, as is supposed, driven by the Chinese from Turkestan, first became powerful in Khorasan, with the Gaznavides. Togrulbeg Mahmood, a brave and prudent warrior, drove out the son of Mahmood, the Gaznavide sultan, in 1037; extended his dominion over Mavaralnar, Aderbijan, Armenia, Farsistan, Irak Agemi, and Irak Arabi, where he put an end to the rule of the Bouides at Bagdad, in 1055, and was invested with their dignity, as *Emir el Omrah*, by the caliphs. Some of his descendants were distinguished for great activity and humanity. The most powerful of them, Malek Shah, conquered also Georgia, Syria and Natolia (Roum). But the empire gradually declined, and was divided into four kingdoms, which were destroyed by the shahs of Khowaresm (1162 and 1195), the atabeks of Aleppo (1139), and the Monguls (1194). Gengis Khan established the power of the Tartars and Monguls in Persia (1220—1405). Those Persian provinces which had been acquired by Gengis Khan fell to his youngest son, Tauli, in 1229, and then to the son of the latter, Hulaku, at first as governors of the Mongolian khans, Kajuk and Mangu. Hulaku extended his dominion over Syria, Natolia and Irak Arabi. He or his successor became independent of the great khan, and formed a separate Mongolian dynasty in those countries, which sat on the throne till the death of Abusaid, without heirs, in 1335. His successors, also descendants of Gengis Khan, had merely the title of khans of Persia. The empire was weak and divided. Then appeared (1387) Timurlenk (Tamerlane) at the head of a new horde of Monguls, who conquered Persia, and filled the world, from Hindoostan to Smyrna, with terror. But the death of this famous conqueror was followed by the downfall of the Mongul dominion in Persia, of which the Turkomans then remained masters for a hundred years. These nomadic tribes, who had plundered Persia for two centuries, wrested, under the reigns of Kara Juseuf and his successors, the greatest part of Persia from the Timurides, were subdued by other Turkoman tribes under Usong Hassan (1468), and incorporated with them. They sunk before Ishmael Sophi (1505), who artfully made use of fanaticism for his political purposes, and whose dynasty lasted from 1505 to 1722. Ishmael Sophi, whose ancestor Sheikh Sophi pretended to be descended from Ali, took from the Turkomans of the white ram, Aderbijan (1505 to 1508) and part of Armenia, slew both their princes, and founded upon the ruins of their empire, after having conquered Shirvan, Diarbeker, Georgia, Turkestan and Mavaralnar, an empire which comprised Aderbijan, Diarbeker, Irak, Farsistan and Kerman. He assumed the name of a shah, and introduced the sect of Ali into the conquered countries. His successors, Thamas (1523 to 1575), Ishmael II (from 1576 to 1577), Mohammed (1577 to 1586), Hamzeh (1586), Ishmael III (1587), carried on unsuccessful wars against the Turks and the Usbecks. But the great shah Abbas (1587 to 1629), reëstablished the empire by his conquests. He took from the Turks Armenia, Irak Arabi, Mesopotamia, the cities of Tauris, Bagdad and Bassora; Khorasan from the Usbecks; Ormuz from the Portuguese, and Kandahar from the Monguls; and humbled Georgia, which had refused to pay tribute. He introduced absolute power into Persia, transferred his residence to Ispahan, and instituted the pilgrimage to Meshid, in order to abolish that to Mecca among the Persians. The following rulers, Shah Sesi (1629 to 1642) and Abbas II (1642 to 1666) had new wars with the Turks and Indians; with the former on account of Bagdad, which was lost; and with the latter on account of Kandahar, which was reconquered in 1660. Under shah Soliman, however, (1666 to 1694), the empire declined, and entirely sunk under his son Hussein. The Afghans in Kandahar revolted, in 1709, under Mirweis; and his son Mir Mahmud conquered the whole empire, in 1722. A state of anarchy followed. Mahmud, having become insane, was dethroned by Asharf, in 1725: the latter was subdued by Thamas Kuli Khan, who, with the assistance of the Russians and Turks, placed Thamas, son of Hussein, on the throne in 1729. But, when the latter ceded Georgia and Armenia to the Turks, Kuli Khan dethroned him, and placed his minor son, Abbas III, on the throne. He recovered, by conquest or treaties, the provinces ceded to the Russians and Turks, and ascended the throne under the title of *Shah Nadir*, Abbas III having died in 1736. He restored Persia to her former importance by successful wars and a strong government; conquered Bahareim (1735) and Balk (1736) from the khan of Bucharia, Kandahar (1738); invaded (1739) Hindoostan, and obliged the great mogul Mohammed to cede to him some provinces on the Indus and most of his treasures. But, in 1747, Nadir was murdered by the commanders of his guards, and his death threw the empire again into new confusion. Four kingdoms were now formed: 1. Khorasan and Segistan; 2. Kandahar, or the eastern provinces; 3. Farsistan, or the western provinces; and, 4. Georgia. The latter, for the most part, retained its own princes, who, at length, submitted to Russia. In Kandahar and the East, Ahmed Abdallah founded the empire of Afghanistan. (q. v.) He was victorious at Panniput, and ruled with absolute sway in India. His residence was Kabul. He was succeeded, in 1753, by Timur; the latter by Zeman. In the two other kingdoms, the Curd Kerim Khan, who had served under Nadir, and was of low extraction, succeeded in establishing tranquillity, after long and bloody wars, by subduing Mohammed Khan, who fled, and perished at Mazanderan. His wisdom, justice and warlike skill gained him the love of his subjects and the esteem of his neighbors. He did not call himself *khan*, but *vekil* (regent). He fixed his residence at Shiraz in 1755, and died in 1779. New disturbances arose after his death. His brothers attempted to get possession of the throne, to the exclusion of his sons. A prince of the blood, Ali Murat, occupied it in 1784; but a eunuch, Aga Mohammed, a man of ancient family and uncommon qualities, had made himself independent in Mazanderan. Ali Murat, who marched against him, died in consequence of a fall from his horse, and left the sceptre to his son Yafar, who was defeated by Aga Mohammed at Jezd Kast, and fled to Shiraz, where he perished in an insurrection. His son Luthf Ali made several desperate efforts to recover his throne; but Aga Mohammed was victorious, and appointed his nephew Baba Khan his successor, who has reigned since 1796, under the name of *Feth Ali Shah*. He fixed his residence at Teheran, in order to be nearer the Russians, who threatened him in Georgia and the neighboring provinces. By the peace of 1812, the Persians were obliged to cede to Russia the whole of Daghestan, the Khanats of Kuba, Shirvan, Baku, Salian, Talishah, Karaachb, and Gandsha, resigning all claims to Shularegi, Kharthli, Kachethi, Imeritia, Guria, Mingrelia and Abchasia, and were obliged to admit the Russian flag on the Caspian sea. (See *Russia*.) Feth Ali (born in

1768), a Turkoman of the tribe of Kadshar Shah, was induced by the heir-apparent, Abbas Mirza, and his favorite Hussein Kuli Khan, who believed Russia to be involved in domestic troubles, to attack that power in 1826. The Persians invaded the Russian territories, without a declaration of war, instigated part of the Mohammedan population to insurrection, and advanced as far as Elisabethpol; but they were defeated in several battles, and the Russians under Paskewitch conquered the country to the Araxes, which, by the treaty of Tourkmantchai (1828) was ceded to Russia. (See *Russia.*) The cholera morbus made great ravages in the north-western part of Persia in 1829 and 1830. According to the latest accounts, the country was disturbed by the contests of the royal princes. The English always maintain an embassy at the capital, to counteract the influence of Russia.—See Malcolm's *History of Persia* (2 vols., 2d ed., 1829), and his *Sketches of Persia* (1828). Respecting Western Persia, we owe the latest accounts since Chardin, Niebuhr, Olivier, to Kinneir, Morier, Ouseley, and particularly to Ker Porter, and Price's Journal of the British Embassy to Persia (London, 1825). Price was secretary to Ouseley's embassy. J. B. Fraser, in his Narrative of a Journey into Khorassan, 1821—1822 (London, 1825, 1 vol., 4to.), describes the general state of Persia. The Adventures of Haji Baba of Ispahan, by Morier, and J. B. Fraser's two works—Kuzzilbash, and the Persian Adventurer, being the Sequel of Kuzzilbash—are interesting delineations of Persian manners. The great influence of England in Persia appears from G. Keppel's Journey from India to England, by Bassorah, Babylon, Curdistan, Persia, &c., in 1824 (London, 1827, 4to.). Drouville's *Voyage en Perse* (2d edit., Paris, 1825, 2 vols.) contains valuable information: see also the *Letters on the Caucasus and Georgia*, by Freygang, Russian consul-general (in French, Hamburg, 1816). Bucet's and Balbe's New Map of Persia (Paris, 1826) is accompanied by a historical and statistical sketch of the monarchy.

Persian Language, Literature and Ancient Religion.—In the Persian provinces, which had previously formed the kingdom of Media, the Zend and Pehlvi, or Pehlevi, were the prevailing languages; the former in the north, the latter in the south of Media. *Zend* is a Pehlvi word, signifying *living*. In the Zend, which is nowhere mentioned as a spoken, but only as a sacred language, Zoroaster (q. v.), or Zerdusht, wrote his religious books, with which Anquetil du Perron made us better acquainted, so far as they are extant, under the name of *Zendavesta*, or the *living word*. Sir W. Jones was informed by a learned disciple of Zoroaster, that *Zend* is the name of the character in which the books are written, and *Avesta* the name of the language. It appears to have been extinct before the beginning of the vulgar era; and among the Guebers, who adhere to the doctrines of Zoroaster, there are at present very few who are acquainted with it. The Zend, both in its grammatical construction, and its radical words, bears a great resemblance to the Sanscrit and Teutonic languages. (See *Rask.*) The Pehlvi, that is, the language of heroes, which was first spoken nearly contemporarily with the Zend, at first in Media or Parthia (in the language of the country, *Pehlo* or *Pehluwan*), and seems to have been closely allied with the Georgian and Aramæan, attained to a high degree of perfection, and became, under the Parthian kings, the common language of the nobility and higher classes, but gave way to the Parsee when the seat of the empire was transferred to the southern provinces, and the Sassanides prohibited its use. According to some vague reports, it is still spoken by a wandering tribe of Shirvan (the Puddars). Among the Guebers there are only a few who understand it. The writings of Zoroaster were early translated into the Pehlvi: there are also some theological and historical writings extant in it, several of which Ouseley has brought to Europe. Under the Sassanides, the soft, rich and expressive language of Fars or Farsistan (the Parsee), became the prevailing language in Persia: from it sprung the modern Persian, and from the two was formed the rude Curd dialect. The Parsee, or the pure language of Farsistan, bears traces of a common origin with the Sanscrit; although we do not assume, with Schlegel, that the Sanscrit is the mother of the Parsee, nor with Frank, that the Parsee is the mother of the Sanscrit; the latter of which opinions, however, appears the more probable, on account of the greater simplicity of the Parsee. We find the Parsee tolerably pure in Ferdusi, and other authors of the first century of the Mohammedan era, though not entirely free from mixture with the Arabic. This mixture took place after the conquest of Persia by the Arabs, when Mohammedanism became the prevailing religion of Persia, and Arabic the learned language of the country. The addition, not only of single words, but even of whole phrases, was owing partly to necessity,—because words were wanting in Parsee to express many new ideas,—and partly to an affectation of elegance. In this manner was formed the modern Persian. The Arabian words which it contains have, in some instances, remained unchanged, and have sometimes been changed and inflected in the Persian manner. The resemblance between the Persian and Teutonic is not so great, that a German could, as Leibnitz said, at once understand whole Persian verses, but it is certainly striking, and proves, without justifying us in adopting useless hypotheses, that the German, which came from Asia, sprung from the same source with the language of the early inhabitants of Persia. The same is true of the Celts, Sclavonians and Thracians, of whose languages traces are also to be found in the Persian. According to Hammer, the present Persian is, of all the Eastern languages, the most nearly allied to the German. In the country which, according to Mirchond, was anciently called *Germania*, and, according to Eddussi, *Erman*, the old Persian is the native dialect; so that the name *Germani* is not of Roman origin. In the simplicity of its grammatical construction, the Persian language resembles the English; in its power of compounding words, the German. We pass over the dialects of the Persian language, merely mentioning that the most cultivated of them, the refined Parsee, which has become the language of the court and of literature, is called *Deri* (court language, from *dar*, door), and that the popular language is called *Valaat*. The written character of the Persian language is the Arabic, with the addition of four letters with three points, which are not in the Arabic. Their books are most frequently written in the character called *Talik*. The Persian literature, of which the Magi were in possession until the introduction of Mohammedanism, has nothing to show in its old dialects, the Zend and Pehlvi, but the works above-mentioned, and the Persepolitan inscriptions, which are in part unintelligible. What escaped destruction in the time of Alexander, was destroyed under the caliphs, and a few fragments only were preserved among the fugitive Parsees or Guebers. Persian civilization declined during the first period of the Arabian dominion; even in the tenth century, no traces of any literature are to be found among the Persians. Learning first revived in Persia in the time of the Abassides, and Arabian literature was already on the decline, when the Persian, favored by the Bouides and Seljooks, revived. Among the princes who encouraged learned men and poets by personal favor and rewards, the Bouide Azad Eddaulet, in the middle of the tenth century, the Gaznavide sultans Mahmood Sebektechin and Keder Ben Ibrahim, and the Seljook sultan Malek Shah, with his vizier Nazam el Maluk, and Keder Chan Chacan, deserve to be mentioned. The flourishing period of literature continued till the time of Gengis Khan, in the thirteenth century. Under Timur, in the fourteenth century, and the Turks, in the fifteenth, it continually declined, and in the sixteenth, was almost entirely extinct. The oppressions and disturbances to which Persia has since been continually subject, have prevented the revival of learning. The old Persian language is now almost superseded by the Turkish; the Parsees alone speak it. But the Persians possess rich literary treasures of the earlier periods, particularly in poetry, history, geography, &c. We must limit ourselves chiefly to a notice of that portion which has been touched by Europeans. The most brilliant part of Persian literature is poetry. (See Hammer's *History of Persian Polite Literature* (in German, Vienna, 1818). Among the poets are the following: Rudigi, the father of modern Persian poetry, who translated in verse Pilpay's fables; the epic poet Ferdusi (q. v.), author of the *Shahnameh*, or Book of Kings (of which Görres has given an abridgment), who lived at the beginning of the eleventh century; and his contemporaries, the celebrated lyric poets, Ansari (the first king of poets) and Ahmed Essedi of Thus. Also distinguished as lyric poets are Anweri or Enweri, of Bednah, in Khorasan (died 1200), who was unsurpassed in the *Cafide*, and inferior only to Hafiz in the ode (two of his poems are contained in the Asiatic Miscellanies); Chakani, his contemporary and rival; Chodscha Hafiz Schemseddin Mohammed, best known under the name of *Hafiz* (q. v.); Shahi, probably a pupil of Djami; Hatefi, Emir Chosrou, Senai, Shefali, and many other writers of the divan, who are mentioned in Hammer's work above referred to. To the lyric poets of Persia also belong the Turkish emperor Selim I, the unfortunate Shah Allum (see Franklin's *Life of Shah Allum*), and the Shah Feth Ali. As a lyric, mystic and moral poet, Sheik Sadi (q. v.) is the most celebrated, not only in the East, but also among us. Ferideddin Attar, a contemporary of Sadi's, was the author of a very valuable collection of proverbs, under the title of *Pendnameh* (Book of Counsel),—of which Sylvestre de Sacy has published a complete edition,—and of several other poetical works. Jelaleddin Roumi of Balk, in Khorassan, is esteemed the most perfect model of the mystic school: he formed a sect, and died 1262, a pious Sophi. His great work, *Kilat el Metnavi* (Collection of Distichs), is so difficult to be understood, that a glossary is necessary. One of the most prolific and pleasing poets of Persia is Abdalrahman, or Abdurrahman Ebn Achmed, more known under his surname of *Molla Djamy*. (See *Jamy*.) To the poets of the first class belongs Nizam, or Nisami, at the end of the sixteenth century, author of five poems, three of which, *Chosrou and Shirin*, *Leila and Mejnoun*, and the History of Alexander, *Iskandernameh*, are epics. Some tales and fables selected from his Book of Fortune, have appeared in the original and in translations. If we were willing to enumerate merely names, we might mention Khosru, or Chosrou, of Delhi, Abubatha of Kerman, and Nani, each of whom wrote five long poems; Mir Ali of Shirvan, Achmed of Kirvan, and Emir Soliman, each celebrated as the writer of a history of Alexander; and many others. Instead of drawing up such a mere catalogue, we refer to Hammer's valuable work. Sources of information concerning the Persian poets, are the *Beharistan* of Jamy, the works of Haji Chalfa, the lives by the Persian Dauletshah, continued by Sam Mirza, under the title *Teskiretelchoara* (of which some extracts may be found in the *Notices et Extraits des Manuscrits*, &c., by Sylvestre de Sacy), and the *Ateshkede* (Fire Temple), by Haji Lotfali Beg, surnamed Azir. The most celebrated recent Persian poet, Blab Phelair, died in 1825, at the age of 96. He left astronomical, moral, political and literary works. He is called the *Persian Voltaire*. Not less numerous are the prose fables, tales and narratives. Among these are the *Anwar Soheili*, a Persian translation of the fables of Pilpay; the *Bahar Danuck* of Einajut Doollah (translated by John Scott, under the title of Garden of Knowledge, 1799, 3 vols.); the *Tootinameh*, or Tales of a Parrot (Persian and English, by Hadley); the Tales of Bakhtyar and the Ten Viziers, &c., translated by Ouseley (q. v.). Other similar works have been given us by Scott, in his Tales, Anecdotes and Letters, translated from the Arabic and Persian (1800); by Langlès, in his *Contes, Sentences et Fables, tirées d'Auteurs Arabes et Persans* (1788), and in other collections of this kind. In the departments of history, geography and statistics, the Persians have some large and valuable works. Abu Said, or Abdallah Ben Abulkasin Beidavi, wrote a universal history, from Adam to his own time (1276), under the title of Historical Pearl Necklace. Andrew Müller has published, in Persian and Latin, the eighth part of this work, which contains the history of China. Turan Shah, who died at Ormuz, 1377, wrote a *Shaknameh*, of which an abstract is given in Pedro Texeira's *Relaciones del Origen Descendancia y Succesion de los Reyes de Persia y de Hormuz* (Antwerp, 1610). Mirchond or Mohammed Ebn Emir Chowand Shah, who flourished in 1741, wrote the voluminous historical work entitled *Hortus Puritatis in Historia Prophetarum, Regum et Chalifarum* (Garden of Purity in the History of the Prophets, Kings and Caliphs), of which, besides the fragment in Wilkins's Persian Grammar, four extracts have been published—in the History of the Persian Kings, by Jenisch (Vienna, Persian and Latin); the History of the Sassanides, in French only, by De Sacy, in his *Mémoires sur diverses Antiquités de la Perse*; the History of the Samanidæ, by Wilken (Persian and Latin, Göttingen, 4to.); and the History of the Dynasty of the Ishmaelites, by Jourdain, in his *Notice de l'Histoire universelle de Mirkond*, &c. (Paris, 1814, Persian and French). Mirchond's son, Khondemir, or Gayyetheddin Ben Hamadeddin, wrote a *Compendium Historiæ universalis Mohammedanæ* (Abridgment of Mohammedan History), still in manuscript. The *Tarik el Tabari* (a History of Nations and Kings) was originally written in Arabic, by Mohammed Ebn Giaffir Mahomed Ben Gerir, but is now extant only in a Turkish translation, and in the Persian translation of Balami. The *Lebtarik* (Marrow of History) of Al Emir Yahia Ebn Abdollatif al Kazwini (who died 1351) has been translated into Latin by Gaulmin and Galland. Of Mohammed Kazim Ferishta, we have two valuable works, one of which has been translated into English by Dow, under the title History of Hindoostan (London, 1768, 3 vols., 4to.), and the other by John Scott, under the title of History of Dekkan (1794, 2 vols., 4to.). The *Tuzuki Jehan Guir*, written by the emperor Jehan Guir, is very valuable in regard to the history and geography of Hindoostan; of which Gladwin has given extracts in the Asiatic Miscellany: but the most important work is the *Akbarnameh* of the vizier

Abul Fazl (put to death 1604), the most elegant writer of Hindoostan, written by command of the emperor Akbar. The two first parts of this work contain a history of Akbar and his predecessors; the third, entitled *Ayeen Akbari*, contains a geographical, statistical and historical description of Hindoostan, with much other information. Of this third part, Gladwin has published extracts, under the title *Ayeen Akbery*, or Institutes of the Emperor Akbar. Abul Fazl also translated the fables attributed to Vishnu Sarma from the Sanscrit into the Persian. Of the Annals of Asem of Kufa, Ouseley has given some extracts in his Oriental Collections, which make us desirous of the whole. We are indebted to the same learned Orientalist for an Epitome of the ancient History of Persia, extracted and translated from *Johan Ara*, a Persian Manuscript (London, 1799). The History of the Persian Empire, by Alomri, from original sources, has not yet been edited. There are numerous works, comprising short periods of time, as single dynasties and single reigns. The *Tarik Ali Mosaffer* contains a history of the seven kings of the Mosaffer family, Shah Babur left valuable commentaries concerning Hindoostan, translated into Persian by Abdul Rahim (English by doctor Leyden and Mr. Erskine). Abul Rizak wrote a life of the Shah Rokh and his successors, and the history of his embassy to China and Hindoostan, the latter of which has been translated by Langlès in his *Collection portative des Voyages*. Mevana Abdallah Ibn Faziellah, surnamed *al Wafi*, wrote, in the thirteenth and fourteenth centuries, a history of Gengis Khan and his successors till 1336. Sherifoddin, or Molla Sherifoddin Ali Yezdi (died 1446), wrote a biography of Timur, full of fables, translated into French, by Petit de la Croix (Paris, 1724), whose son also wrote, from Persian sources, a *Histoire du grand Genghiz Chan*. Sir W. Jones translated into French a history of Nadir Shah, by Mirza Mohammed Mahadi Chan of Masandaran. Gladwin translated another history of the same prince, by Abdul Kurreem of Cashmere, entitled *Beyoni Uaki* (Necessary Information); and Langlès has given an abstract of this author's Pilgrimage to Mecca, in his *Collection*. Lastly, James Fraser has also written a history of Nadir Shah (London, 1742). Here we may mention the *Tuzukati Timur*, translated by Davy, and edited by White, under the title, Institutes political and military, written originally in the Mogul language, by the great Timur, translated into Persian by Abn Talib Alhusseini, and thence into English (Oxford, 1783, 4to.). As to the geographical works in the Persian language, Ouseley has published a fragment of the *Cleimat* (the seven climates), in his Oriental Collections, and an abstract of the Persian translation of the geography, written in Arabic, by Ibn Haukal. Upon chronology, Gravius (Greaves) published a valuable Persian work, *Epochæ Celebriores* (Persian and Latin, London, 1650). No work of the Persian physicians has been translated; but we may mention the valuable work of Abulmansur Mowafin Ben Ali, which is in Vienna. Geometry and astronomy were also cultivated with ardor by the Persians. Nasereddin of Thus translated, and Maimon Raschid commented upon Euclid. Omar Chehan (in 1072), in the reign of Malek Shah, calculated the solar year at 365 days, 5 hours, 48 minutes and 48 seconds; and among the astronomical tables, computed by Persians, the most valuable are those prepared by Nasereddin, at the command of Hulaku Ilekan, and called by his name, but not completed till five years after Ilekan's death (1269), and those drawn up in the first half of the fifteenth century, under the superintendence of Ulug Beigh, by a large number of astronomers, and which were published by Greaves and Hyde. Hulaku Ilekan (1259) established an astronomical academy at Maragha, and erected an observatory, of which Nasereddin had the superintendence. Ulug Beigh also erected one at Samarcand. A Persian calendar, under the title *Ruznameh nauruz*, has likewise been printed. (See *Epoch*, p. 552.) We must also mention Beck's *Ephemerides Persarum per totum Annum* (Vienna, 1695, folio), and Welsh's *Tabulæ Æquinoctiales* (Augsburg, 1676, 4to.). The works upon Mohammed, the Mohammedan religion, the legends of the saints, &c., are numerous, but for us of little interest. The Persian abridgment of the Vedas, entitled *Oupnek'hat*, although almost unintelligible by us (translated into Latin by Anquetil du Perron, 1804, 2 vols., 4to.), and the *Desatir* (q. v.), are important monuments. The Pentateuch of Moses in the Persian language, translated by a Jew of Thus, is in Walton's Polyglot. Of the Gospels there are two translations; one in the Polyglot above-named, and the other published by Wheelock (London, 1657, fol.). Their value has been indicated by Rosenmüller. The Persians have paid great attention to their own language: of this, the number of lexicographical and grammatical works extant affords abundant proof. The small Persian-Turkish dictionary of Shahidi is only for beginners. That of Ardeshir is more celebrated, and also the *Naëmet Allah* (Delight of God), adopted by Castellus as the basis of his; but the two most celebrated are the *Ferhangi Jehan Guir*, and the *Ferhangi Schuari.* The latter was published in 1742, and another by Seid Ahmed, in 1804, at Constantinople. This view is sufficient to show the importance of the Persian language, since, besides being in the East, especially in India, what the French is in Europe, it possesses valuable treasures, not only of native literature, but also of translations from the Arabic, different Indian and other languages, the originals of some of which are lost, and of others, are inaccessible to us. We are also copiously supplied with aids in this study. The grammars of Jones and Richardson (not to mention earlier ones) are now surpassed by Gladwin's *Persian Moonshee*, and especially by Lumsden's Persian Grammar (2 vols., fol.). In Germany, Wilken has published the best Persian grammar. Of the dictionaries the most complete are *Meninski Lexicon Arabico-Persico-Turcicum* (2d edit., 4 vols., folio). Richardson's Dictionary, Persian, English and Arabic, &c., a new edition, with additions and improvements, by Wilkins (London, 1806, 2 vols., 4to.); Barretto's Persian and Arabic Dictionary (2 vols.); and Hopkins's Abridgment of Richardson (in 1 vol., 1810), are the best. Much valuable information is contained in Jones's Commentaries; Ouseley's Oriental Collections, and Persian Miscellanies; Gladwin's Dissertations on the Rhetoric, Prosody and Rhyme of the Persians; in the *Fundgruben des Orients* (Mines of the East); in the valuable works of J. von Hammer, &c. (See *Oriental Literature.*)

Persian Æra. (See *Epoch.*)

Persian Gulf; a sea, or inland lake, bounded by Persia and Arabia, except at the eastern extremity, where it communicates with the Arabian sea; about 500 miles from east to west, and from 120 to 250 from north to south. The principal river which runs into it is the Euphrates. The south coast, in particular, is celebrated for its pearl fishery. Most of the coast belongs to colonies of Arabians.

Persian Wheel. (See *Hydraulics*, vol. vi, p. 506.)

Persimon (*diospyros Virginiana*). This tree is unknown in the north-eastern parts of our country, but south of latitude 42° is found throughout the U. States, even to the upper parts of the Arkansas river. It is common in the Middle and Southern States, and still more abundant in the western forests. It varies exceedingly in size, being sometimes sixty feet high, with a trunk twenty inches in diameter, but more frequently does not attain half these dimensions. The leaves are oblong and entire, and the flowers small and monopetalous. The fruit is roundish, about an inch in diameter, fleshy, and contains six or eight large oval and compressed seeds. While green, it is powerfully astringent, but when fully ripe, and of an orange color, the pulp becomes soft, palatable, and very sweet. In the Southern States, persimons are sometimes gathered, pounded with bran, and formed into cakes, which are kept for making beer, with the addition of hops, &c.; and a method has been long known of distilling brandy from the water, previously fermented, in which this fruit has been bruised; but neither object is likely to become important. The heart is brown, hard, compact, strong, and elastic, but is said to be liable to split. At Baltimore, it is used by turners for large screws, and by workers in tin for mallets; at Philadelphia, it has been found equal to the beech for shoe-lasts; at Charleston, it is preferred to the ash for the shafts of chaises; and, in the interior of Carolina, large wedges are made of it for splitting the trunks of trees; but the usually inconsiderable size of the tree renders this wood much less important than it would be otherwise. In clearing the forests, the persimon is usually preserved, and it is probable that the quality of the fruit might be improved by cultivation. This tree is diœcious, and belongs to the natural family *ebenaceæ*, and, indeed, to the same genus with that which furnishes the ebony of commerce. (See the article *Ebony.*)

Persius. Aulus Persius Flaccus, a Roman satirical poet, was born, A. D. 34, at Volterra, in Etruria, and died in 62. According to some, Luna was his birthplace. His family was of the equestrian order, and he received his education at Rome. He was on friendly terms with some of the most eminent men of the time, and was much beloved on account of the purity and amenity of his manners. He died at the age of twenty-eight years. The Stoic Cornutus, one of his first teachers, published six satires by him, which present a picture of the prevailing corruption, in contrast with the standard of Stoic wisdom and the old Roman severity. They are distinguished for vigor, conciseness, and austerity of tone. Their obscurity arises in part from their allusions to subjects now unknown, and in part from their abrupt and concise style. They are usually published with the satires of Juvenal. The best editions are those of Casaubon (Leyden, 1695) and König (Göttingen, 1804), with commentaries. Dryden and Gifford, among others, have translated them into English. Madan's edition of Juvenal and Persius, with a prose translation and English notes (1789), was reprinted in 1813.

Personification, in the fine arts, poetry and rhetoric; the representation of an inanimate subject as a person. This may be done, in poetry and rhetoric, either by giving epithets to inanimate subjects which properly belong only to persons, or by representing them as actually performing the part of animated beings. In the latter case, the name *prosopopœia* is also used. Strictly speaking, we may be said to *personify* whenever we apply an epithet expressive of life to an inanimate subject, as *awakening nature*, *raging storm*; but a little reflection will show us that ordinary language is full of personifications of this kind—nay, we could not speak without them. The word *personification* is therefore generally applied only to a formal representation of a thing as a person. The more the imagination prevails among a people, the more common are personifications. Take, for instance, the tales of the Arabs. As reflection acquires the ascendency, personifications are less used. Many of the mythuses are personifications of powers of nature or events of history.

Perspective; the art of copying the appearance of objects, as seen from a certain point of view. It enables the artist to represent objects on a given surface, as if the surface were transparent, and the objects were seen through it. As we see by means of the rays of light which proceed in straight lines from the objects to our eyes, perspective rests on optical principles. As the drawing of the form of an object is an arrangement of lines and angles according to geometrical principles, perspective may be considered as a branch of geometry. That part of perspective which relates to the form of the objects differs essentially from that which teaches the gradation of colors according to the relative distance of objects. Hence perspective is divided into *mathematical*, or *linear perspective*, and the perspective of color, or *aerial perspective*. Both are of the greatest importance to painters, architects, sculptors, &c. Without a correct observance of the rules of perspective, no picture can have truth and life. Perspective alone enables us to represent foreshortenings with accuracy, and it is requisite in delineating even the simplest positions of objects. As long, therefore, as its rules were unknown, the art of drawing necessarily remained in its infancy. This art has been most cultivated in modern times; yet the paintings found in Herculaneum prove that the ancient Greek painters were acquainted with it in some measure.—The contour of an object, drawn upon paper or canvass, represents nothing more than such an intersection of the visual rays, sent from the extremities of it to the eye, as would arise on a glass put in the place of the paper or canvass. Now the situation of an object at the other side of a glass being given, the delineation of it on the glass itself depends entirely on the situation of the eye on this side of the glass; in other words, *on the rules of perspective*. Suppose a spectator to be looking at a prospect without doors from within through a glass window: he will perceive the shape, size and situation of every object visible upon the glass. If the objects are near the window, the spaces they occupy on the glass will be larger than when they are at a greater distance; if they are parallel to the window, their shapes upon the glass will be parallel likewise; if they are oblique, their shapes will be oblique; and so on. As he alters the situation of his eye, the situation of the objects upon the window will be altered also; if he raises his eye, the objects will seem to rise higher upon the window, and the contrary if he lowers it. The horizon will, in every situation of the eye, be upon a level with it; that is, the imaginary line which parts the earth and sky will seem to be raised as far above the ground upon which the spectator stands as his eye is. Now suppose the person at the window, keeping his head steady, draws the figure of an object seen through it upon the glass with a pencil, as if the point of the pencil touched the object; he would then have a true representation of the object in perspective, as it appears to his eye. To every person who possesses a general knowledge of the principles of optics, this must be self-evident; for, as vision is occasioned by pencils of rays coming in straight lines to the eye from every point of the visible object, it is plain that, by joining the points in the transparent plane through which all those pencils respectively pass, an exact representation must be formed of the object, as it appears to the eye in that particular position, and at that determined distance. And were pictures of things to be always first drawn on transparent planes, this simple operation, with the principle on which it is founded, would comprise the whole theory and practice of perspective. As this, however, is far from being the case, rules must be deduced from optics and geometry for drawing representations of visible objects on opaque planes; and the application of these rules constitutes what is properly called the *art* of perspective. There are used in perspective a certain number of terms peculiar to the art, definitions of which are necessary to an intelligent use of them. The *original object* is that which is made the subject of the picture. *Original planes*, or *lines*, are the surfaces or lines of original objects. The *point of view* is the situation of the eye. The *point of sight* is the point in the perspective plane which is nearest to the eye. As far as the picture is concerned, these two points coincide, so that some authors have used them indiscriminately one for the other. The point of sight is also called the *centre* of the picture. A *visual ray* is a line from the object to the eye. If the object is a point, there is but one visual ray; if it is a line, the visual rays form a triangle; if it is a square, they form a pyramid; if a circle, a cone, &c. The principal visual ray is that from the nearest point in the picture, or point of sight. The *perspective plane* is the surface on which the picture is delineated; or it is the transparent surface through which we suppose objects to be viewed. The *directing plane* is a plane supposed to pass through the eye of the spectator, parallel to the perspective plane. The *ground plane* is the earth, or the plane surface on which the spectator and objects are situated. The *horizon*, or *horizontal plane*, is one parallel to the ground plane, and at the height of the spectator's eye. The *horizontal line* is the intersection of the picture, or perspective plane, with the horizontal plane. The *ground line* is the intersection of the perspective plane with the ground plane; or it is the line on which the picture is supposed to stand. The *perpendicular* is a line on the perspective plane, drawn through the point of sight, perpendicular to the ground line and horizontal line. The *points of distance* are points on the perspective plane, set off from the point of sight, sometimes on the horizontal line, and sometimes on the perpendicular, at the same distance from the point of sight that the eye is supposed to be at from the perspective plane. —*Projections*. The projections of a body are the different modes by which it may be delineated on a plane surface. *Scenographic* projection represents objects as they actually appear to the eye at limited distances. *Orthographic* projection represents objects as they would appear to the eye at an infinite distance, the rays which proceed from them being parallel, instead of converging. The shadow which a body casts in the rays of the sun may be considered as an orthographic projection. In this projection, lines which are parallel in the original are parallel in the picture, and do not converge to any vanishing point. Their comparative length, also, is not affected by difference of apparent distance. Orthographic projection is much used in delineating buildings, machinery, &c., because those parts of the drawing which are not foreshortened maintain their true relative size, so that measures can be taken from them. The term *ichnographic* projection is sometimes used to express the horizontal delineation, or ground plan, of an object. A *bird's eye view* is a scenographic or orthographic projection, taken from an elevated point in the air, from which the eye is supposed to look down upon the objects. Geometrical and mechanical methods will enable a person not previously conversant with the art to obtain correct perspective representations of any object. But by long practice in drawing from nature a certain tact is acquired by painters, which enables them, by the accuracy of the eye and judgment alone, to make correct views of objects, without the aid of any computation or mechanical process. Thus miniature painters produce the nicest resemblance of the human countenance, in any position, with no other guide than the faculty obtained by experience of estimating the exact shape and proportion which each part of the original should bear upon the picture.—Equally important with the linear perspective is *aerial perspective*, though not founded on equally demonstrable rules. It teaches how to judge of the degree of light which objects reflect in proportion to their distance, and of the gradation of their tints in proportion to the intervening air. The nearest objects only appear in their true colors and full light. In the case of the more distant, the light and color become blended with the colors of the vapors which fill the air, in proportion to their distance, until, at last, the objects become lost in an indistinct mass, of a bluish tinge, in the horizon, whilst their color and that of the air become one. The proportion of this *degradation*, as it is called, is regulated by the purity of the air, being greater according as there is more vapor in the air. Hence distant objects in a clear southern air appear much nearer than they really are, to an eye accustomed to a thick northern atmosphere. As the air changes, the aerial perspective must change. Morning, noon, evening, moonshine, winter, summer, the sea, &c., all have their different aerial perspective. In aerial perspective, the weakening of the tints corresponds to the foreshortening of the receding lines in linear perspective. In the illuminated parts of objects, the tints are represented more broken and fluctuating. The shaded parts are often aided by reflection. If the degree of the density of the air is given, the degrees of these gradations may also be determined; not by mathematical rules, indeed, but by close observation of nature. By aerial perspective two results are obtained:—1. each object in a picture receives that degree of color and light which belongs to its distance from the eye; 2. the various local tones are made to unite in one chief tone, which is nothing else than the common color of the air, and the light which penetrates it. The charm and harmony of a picture, particularly of a landscape, depend greatly upon a correct application of aerial perspective. Aerial perspective is hardly found at all in the productions of the ancient German and Italian schools to the time of Perugino. (q. v.)—Valencienne's Practical Introduction to Linear and Aerial Perspective (in French) is very good. Beginners in linear perspective will find Easy Lessons in Perspective (Boston, 1830) a convenient manual.

Perspiration. By perspiration from the bodies of beasts and men, we understand, 1. that operation by which certain fluid matters, separated from the blood in the thick network of capillary vessels and cells constituting the skin, are changed into vapor (or into fine effluvia), and in this form escape at the pores of the skin; 2. sometimes, also, the secretion and removal from the body of these matters themselves, by the action of the skin. This effluvium is usually so fine, that we cannot see it with the naked eye, whence we call it the "insensible perspiration"; but it becomes visible, if we hold the hand on cold glass or polished metal; also, if the perspiration is strong, in a cold temperature, or if, from a still stronger perspiration, this vapor is not dissolved in the air, but collects on the skin in drops forming sweat. This perspiration through the skin has much resemblance to the vapor that escapes from the lungs, to the secretions of the membranes lining the cavities of the body, as the stomach, chest, and abdomen, with which secretions it also appears to stand in connexion. The importance of this function will be evident when we reflect, that the surface of a full grown man contains fifteen or sixteen square feet, and therefore the quantity of matter incessantly perspired must be very great, which is also confirmed by the accurate observations of Sanctorius (Venice, 1611), who spent a great part of his life at the balance. He weighed and kept an account not only of all the food that he consumed, but also of every thing that passed from him, and thereby proved that a great part not only of the fluid, but also of the solid substances that a man consumes, leaves his body by perspiration. Perspiration promotes two objects very important for the preservation of the bodily structure. One is the purification of the blood from injurious and superfluous matters. Besides the adventitious compound matters that pass into the blood from particular kinds of food (for instance, onions, &c.), the carbon, the hydrogen, and particularly the excess of nitrogen, are carried off from the blood by perspiration, and changed by caloric into gas and vapor, and thus removed from the body. The substance of the body is, in many diseases, particularly in fevers, converted into aeriform fluids by an evaporation so extraordinarily increased and accelerated, that the strongest man is entirely worn away in a few days, without having lost any thing except through his skin. The other advantage of perspiration is the preservation of a suitable degree of warmth in the body, and the reduction of an immoderate heat. Every living body has its peculiar degree of warmth, which remains for the most part the same, whether the surrounding bodies are more or less warm. The temperature of man is about 92° to 99° Fahrenheit. As much caloric is employed in the process of perspiration (see *Evaporation*), it is an important means of cooling the body and of conducting off the heat which is incessantly generated within. The greater the heat which the body is exposed to, or the more it is produced within from other causes, as hot drinks and excitement, the greater is the perspiration, and the more actively is the heat conducted off. If the body is exposed to great cold, the operations of the skin are weakened, perspiration proceeds more slowly, caloric is more sparingly consumed, and thus accumulates in the body. Men usually lose flesh in summer, and recover it in winter, because the increased perspiration dissolves and removes more substance from the body in the former season. Therefore a man is cooled by sweat, and in the dry heat of a fever is refreshed as soon as a crisis produces perspiration. An interruption or even a disturbance of perspiration, for a long time, must then produce results in the highest degree prejudicial to the health, and even dangerous to life. These results in a great measure depend on the close connexion of the operations of the skin with those of the internal organs, and are the more stubborn and injurious the longer the perspiration is impeded. The increase of the internal warmth often produces a fever; also noxious matters are collected in the blood, from which it should be freed; therefore it changes from its natural condition, and an unnatural excitement is produced. Finally, the operation of the other organs of secretion is immoderately increased, because they have to perform in part the office of the skin: thence result, after a cold, rheum, sore throat, cough, also serious internal inflammations, diarrhœa, diabetes dropsy, protracted rheumatism, and various other diseases. In a physiological view, William Cruikshank's Experiments on the Insensible Perspiration of the Human Body (London, 1795) deserves mention.

Perth; a city of Scotland, capital of Perthshire, on the Tay, 39 miles north of Edinburgh; lon. 3° 27′ W.; lat. 56° 22′ N.; population, 20,000. It is situated on a low plain, under the Grampian hills: the scenery around it is very picturesque, and the approach to it is uncommonly beautiful. It has two beautiful meadows called *Inches*, each of which is about one and a half mile in circuit. It is a town of great antiquity, and has been the scene of many important transactions recorded in Scottish history. It contains various houses of public worship, a theatre, a celebrated grammar school, an academy, and a literary and antiquarian society, with a library. The staple manufacture is linen; but of late the cotton manufacture has almost superseded it. Besides these, there are extensive manufactures of leather, boots, shoes and gloves. The salmon fishery on the Tay, near Perth, is very extensive.

Perturbations of the course of planets are their deviations from their regular elliptic course, produced by their mutual gravitation. The Newtonian discovery of the law of universal gravity threw much light on this important subject. Newton has shown that all bodies are attracted towards each other: hence every planet gravitates not only towards the sun, but also towards the other planets, the moon not only towards the earth, but particularly towards the sun; nay, even towards Venus and Jupiter. The regular course of the planets in elliptic orbits, according to Kepler's laws, is effected by the attraction of the sun, the course of the moon by the attraction of the earth; deviations must, therefore, naturally occur, in the motion of the moon and planets, if they are acted on also by other bodies. Newton explained and determined part of these deviations; for instance, the precession of the equinoxes and the nutation of the earth's axis. (*See these articles.*) But many problems which require the infinitesimal calculus for their solution, he left undetermined. Clairaut, D'Alembert and Euler subsequently occupied themselves with this subject; but even their solutions are only approximations. Laplace finally found a formula universally applicable, which gives the most exact results, and published the same in his *Mécanique Céleste*. This great work is so much condensed, that it requires a perfect knowledge of analysis, and is, therefore, unintelligible to many mathematical readers. Doctor Bowditch's translation and commentary, unfolding the processes by which the results are obtained, render the study of this work comparatively easy. Bohnenberger, in his Astronomy (Tübingen, 1811), treats this subject in a less difficult manner than Laplace.

Peru; a republic of South America, formerly a Spanish viceroyalty, lying between 3° 20′ and 21° 30′ S. lat., and between 67° and 86° W. lon.; bounded N. by Colombia (Quito) and Brazil, to the E. by Brazil and Bolivia, or Upper Peru; to the S. by Buenos Ayres, and W. by the Pacific ocean; square miles, 426,000; population, 1,700,000. In respect of physical geography, Peru may be divided into the low country on the coast (with a hot climate, characterized by the total absence of rain, the want of which is imperfectly supplied by dew and mists from the ocean), and the highlands, which are formed by elevated ridges (*sierras*), beginning about 65 miles from the coast, and rising gradually to the Andes, of which, in fact, they are the lower steps. This latter region contains lofty plains, from 8000 to 10,000 feet above the level of the sea, and numerous deep valleys. (See *Andes*, and *South America*.) The low districts on the coasts, which are supplied with water, or which lie on the streams and rivers, are fruitful. Besides the streams which flow down the western declivities of the Andes into the Pacific ocean, the Marañon or Amazon (q. v.), and the Ucayale, a tributary of the Amazon, are the principal rivers. The great plain, called the *Pampas del Sacramento* (see *Pampas*), on the Ucayale, is remarkable for its fertility. Earthquakes and sand-spouts sometimes commit terrible ravages. In the high lands the climate is severe, but healthy. Among the animal and vegetable productions of Peru are lamas, vicuñas, guanacos, pearl muscles, purple-fish, cochineal, silk-worms, corn, wine, tobacco, sugar, coffee, cocoa, vanilla, cotton, Peruvian bark, Peruvian balsam, indigo, ginger, cinnamon, &c. Peru is particularly rich in gold and silver. Humboldt reckoned the value of the quantity of these metals, obtained yearly, at more than $6,000,000. (See *Mines*, and *South America*.) Platina, copper, tin, lead, quicksilver, precious stones, salt, alum, saltpetre, coal, sulphur, &c., are also found. The capital of Peru is Lima. The republic is divided into seven intendencies—Arequipa, Cusco, Guamanga, Guanca Velica, Lima, Tarma and Truxillo,—which are subdivided into provinces. An extensive tract of country in the north-eastern part, and not included in these divisions, is inhabited by independent Indians. The population is composed of European Spaniards, creoles (q. v.), metis or mestizoes (q. v.), Indians, negroes and mulattoes. The creoles are, since the revolution, the most influential class. The Indians and mestizoes form the most numerous body. By the constitution of 1828, slavery is totally abolished, and a slave brought into the country becomes free. The wealth of Peru has been entirely owing to its mines, the richness of which, with the sterility of the soil, has prevented much attention being paid to agriculture. The whale fishery on the coasts, and the commerce of the country, are almost entirely in the hands of the Anglo-Americans of the U. States, and of the English. Its long extent of coast, with numerous bays, harbors and road-steads, affords great facilities for commerce. The exports of Peru are copper, cocoa, Peruvian bark, wool (of sheep and the vicuña), and chinchilla furs; imports, silk goods, linen, woollen goods, wine, cottons, &c. Mining operations are impeded by the deficiency of quicksilver and wood; there are 4 copper, 4 quicksilver, 12 lead, and 680 silver mines, and 70 gold mines and washings. The richest silver mines are those of Pasco and Lauricocha; they lie 13,000 feet above the level of the sea, and yield $2,000,000 annually. The mines of Chota, or Gualgayoc, in Truxillo, are richer than those of Potosi; they are 13,385 feet above the level of the sea, and yield about 44,000 pounds of silver annually. Those of Huantajaya, in Arica, in a dry desert, yield yearly 52,000 pounds. Two masses of native silver have been found here, weighing, one 225, the other 890 pounds. Gold is obtained in Tarma, from the mines of Pataz and Huilies, and in the washings on the banks of the Upper Marañon. According to the traditions of the Peruvians, the early civilization of their country was the work of Manco Capac (q. v.), who reclaimed their ancestors from barbarism, and introduced art, law and religion among them. According to Garcilaso de la Vega (q. v.), this event occurred towards the beginning of the twelfth century. The successors of Manco Capac continued to reign until the arrival of the Spaniards in the country. Atahuallpa, the fifteenth inca (q. v.), was defeated and put to death by Pizarro (q. v.), who, with Almagro (q. v.), had entered Peru at the head of a small Spanish force, in 1532, and rapidly reduced it to submission. Of the ancient Peruvians, we have yet some remarkable monuments remaining, such as their roads (called by the Spaniards *Camini del Inca*), which traversed the empire in every direction, fortresses, temples and palaces, which prove their mechanical skill. They were acquainted with the arts of mining, of working in gold and silver, of polishing precious stones, and of sculpture. Their agricultural labors, and their manufactures of wool, &c., prove their intelligence and industry. (See Garcilaso de la Vega's *Historia de las Antiguedades y Conquista del Peru*.) Pizarro, having put the inca to death, took possession of Cusco and its immense treasures. The cruelties which were practised by the Spaniards, finally came to the ears of Charles V, who caused a code of laws to be drawn up for the government of the American conquests, and established an *audiencia* at Lima, the president of which was appointed governor of Peru, in 1543. Still the natives were subject to enormities of the most atrocious character, as long as the first murdering and robbing conquerors survived; and, for a long series of generations afterwards, to the most arbitrary and oppressive acts of a cruel government. The timid and unwarlike Peruvians were repeatedly driven to rebel against their hard masters; one of the most celebrated of these revolts was that headed by Tupac Amaru, in 1780. (See *Tupac Amaru.*) In 1718, the province of Quito, which had previously formed a part of the viceroyalty of Peru, was annexed to New Grenada; and, in 1778, the provinces of Upper Peru (see *Bolivia*) were attached to the government of Buenos Ayres. On the invasion of the Spanish peninsula by the French, in 1808, the first symptoms of revolt began to show themselves in Peru, as in the other Spanish-American colonies; but the Spaniards were powerful enough to repress this spirit until 1821, when general San Martin, at the head of a Chilean force (see *Chile*), obtained possession of Lima, and the independence of Peru was declared (July 15). August 3d, general San Martin was declared protector of the new republic, with the supreme power, civil and military. Callao capitulated September 19. The Spanish generals La Serna and Canterac retreated to the mountains, and kept possession of Cusco. In March, 1822, the protector assembled a Peruvian congress at Lima, composed principally of his partisans, which drew up the plan of a constitution: it provided that the Catholic religion should be the religion of the state; that the legislative authority should be vested in the representatives of the people; that the freedom of the press, and the liberty of person and property, should be secured; the abolition of the slave-trade, of the tribute exacted from the Indians, and of the compulsory labor to which they had been subject, was provided for; a senate was to nominate to the executive authorities the civil and ecclesiastical officers, and, in extraordinary cases, convoke a congress. Much dissatisfaction was produced by this plan, as being too monarchical in its principles. In 1823, San Martin retired, and Lamar (q. v.) was placed at the head of the government, the marquis of Torretagle being governor of the capital. Meanwhile La Serna had maintained himself, and collected new forces in Upper Peru, and defeated the republican troops at Moquegna, Jan. 20, 1823. But the divisions of the Spanish commanders, La Serna, Valdez, Canterac and Olaneta, saved Peru. Riva-Aguero, who had assumed the presidency, called on the Colombians for assistance. General Sucre was despatched to the aid of the Peruvians; he compelled Canterac to evacuate Lima, which had fallen into his hands, and advanced to Upper Peru, while Bolivar entered Lima, and received the title of *libertador*, with supreme military power. Bolivar obliged Riva-Aguero (who had still continued to exercise his authority in Truxillo) to surrender and leave the country, and, in November, the Peruvian congress adopted a constitution on the model of that of the U. States of North America, which was not to have effect until the expiration of Bolivar's dictatorship. La Serna had, meanwhile, collected a large army in Upper Peru, but was prevented from attempting any thing against the patriots, by the opposition of Olaneta, who was at the head of the absolutists, while La Serna had declared himself a constitutionalist. Torretagle, who had been declared president of the republic, was at the head of a party, which was working in secret against the influence of the liberator. Whilst things were in this state, the garrison of Callao (Feb. 5, 1824) hoisted Spanish colors, and opened the fortress to the Spanish ships of war which were blockading the harbor. In this emergency, congress conferred unlimited civil and military power on the dictator, who evacuated Lima on the 27th. Canterac entered the capital on the 29th, and Torretagle now joined the royalists. The war between the royalists was again renewed, and was again the means of saving Peru. Bolivar, having artfully drawn Canterac into the plains of Junin, gained some advantages over him on the 6th of August, and compelled the royalists to evacuate Lima; general Rodil, however, threw himself into Callao. After the patriots had suffered several disasters, Sucre fell back into an advantageous position, at Ayacucho, and determined to await the enemy. Dec. 9, 1824, the patriots, 5780 strong, were attacked by a royalist force of 9310, and gained a complete victory. La Serna and Valdez were made prisoners, and Canterac signed a capitulation on the field, by which it was stipulated that the royalist forces should lay down their arms, and evacuate the whole of the country, to the Desaguadero. The battle of Ayacucho (q. v.) was decisive of the fate of South America. General Rodil refused to surrender Callao, and that fortress held out till Jan. 22, 1826, when it was reduced by famine. Olaneta still maintained himself, for a time, in Upper Peru, but, in 1825, was totally routed by general Sucre. Of the events which followed in Peru, the suspicious conduct of Bolivar, and the constitution which he attempted to force upon the country, we have given an account in the articles *Bolivar* and *Bolivia*. The general disaffection and suspicion which had been excited among the patriots of Peru, resulted in the revolution of January, 1827, which was effected by the coöperation of the Colombian troops left in Peru, who were unwilling to serve as the instruments of imposing a yoke on their Peruvian allies, and were fearful of the designs of Bolivar on the liberties of their own country. The Bolivian constitution was abolished, and the congress, which convened in May, declared the Peruvian constitution of 1823 to be in force, and chose general Lamar president of the republic. April 19, 1828, a new constitution was adopted, to be in force until 1833, when a general convention is to be summoned to revise and amend it. In June, the Bolivians (who were equally disgusted with the code which had been imposed on them by Bolivar) requested aid from the Peruvians, to enable them to throw off the yoke; and colonel Gamarra was despatched, at the head of a Peruvian army, to their assistance. He deposed Sucre, who had been chosen president for life. (See *Bolivia*.) These measures were followed by a declaration of war against Peru by Bolivar. Lamar accordingly entered the Colombian territory at the head of a large force, but was defeated, February 29, 1829, by general Sucre at Tarqui. The imbecility which Lamar had manifested on this occasion, gave rise to a conspiracy against him, and he was deposed by general La Fuente, June 29. August 31, the congress met, and chose general Gamarra president. The hostilities with Colombia were terminated by the treaty of September 22, 1829.—See Hall's *Journal written on the Coasts of Chile, Peru, and Mexico*; Stevenson's *Twenty Years' Residence in South America* (London, 1825, 3 vols.); the *American Annual Register* (vols. 1, 2, and 3).

Perugia; a delegation or province of Italy, in the States of the Church, including the ci-devant *Perugino*, watered by the Tiber and the lake of Perugia; population, 183,000.

Perugia (anciently *Perusia*, and *Perusium*); a city of Italy, capital of a delegation in the States of the Church, twenty-seven miles north-north-west of Spoleto, sixty south-east of Florence, seventy-two north of Rome; lon. 12° 17′ E.; lat. 43° 6′ N.; population, 30,000; a bishop's see. It stands on the summit of a hill, near the Tiber, having one of the most delightful situations in all Italy. It is tolerably well built, and contains forty-five churches and forty-eight convents, which are by no means elegant, several hospitals, and a university on a small scale. It has manufactures of velvet and silk stuffs, and considerable traffic in corn, cattle, wool, silk, oil and brandy. The surrounding country is very rich. The citadel was built by pope Paul III. Perugia was, in the times of the Romans, one of the twelve principal Etruscan cities. It suffered much by the irruptions of the barbarians, and again by the contests between the Guelfs and Gibelines. (See *Guelfs*.)

Perugia, Lake; the ancient *Thrasymene*. (q. v.)

Perugino. Pietro Vanucci, surnamed *Il Perugino*, the founder of the Roman school of painting, born at Città della Pieve, in 1446, received the rights of citizenship in Perugia (whence his surname), and, at an early age, distinguished himself by his works. Bonfigli and Pietro della Francesca were probably his masters. His pictures have much grace, and are particularly successful in female and youthful figures. The turns of his heads are noble, and his coloring is lovely. A certain hardness and dryness in the forms, and poverty in the drapery, were the faults of his age, from which he did not wholly escape. Tranquillity and childish simplicity characterize his works, which are defective in invention. His frescoes are softer and in better keeping than his other productions, as the fine specimens in Perugia, Rome, Bologna and Florence prove. Raphael is his most celebrated disciple.

Peruke. (See *Wig*.)

Peruvian Bark. (See *Bark*.)

Pervigilia; those feasts of the ancients which were celebrated during the night in honor of certain deities, particularly Ceres, Venus, and Apollo. The same name was given to nocturnal banquets in general.

Pestalozzi, John Henry, one of the most distinguished men of modern times for his efforts in the cause of education, was born January 12, 1746, at Zurich, in Switzerland, and was educated by pious relations, after the death of his father, who had been a physician. Even when very young, he manifested strong religious feelings, a quick sense of right, compassion towards the poor, and a fondness for young children. He had a great inclination for the study of languages and theology; but, after an unsuccessful attempt to preach, he studied law. Some treatises of his on preparation for a profession, and on Spartan legislation, and the translation of some speeches of Demosthenes, which he published, were proofs of his diligence and talents. But Rousseau's *Émile* filled him with a dislike for the habits of a learned life, and for the general system of education in Europe; and a dangerous illness, occasioned by excessive study, induced him, immediately after his recovery, to burn the greater part of the extracts and collections which he had made during his study of the history of his country and of law, and to become a farmer. He studied agriculture with a farmer near Berne, and then bought a piece of land in the neighborhood, built a house, which he called *Neuhof*, and began the life of a farmer when he was twenty-two years old. He soon married, and became concerned, through his wife's relations, in a calico manufactory. In these situations, he became acquainted with the moral wretchedness of the lowest classes, and, in 1775, began his career of instruction by the admission of the children of paupers into his house. He soon saw himself surrounded by more than fifty children, to whom he was a teacher and father. He had no aid from others, and, though he worked with the children when he was not employed in teaching them, or in his private affairs, he had not the practical talent necessary to turn the labor of his little workmen to account. His philanthropic and noble self-denial was derided; his confidence was abused; his own affairs declined; and he was generally considered as a well-meaning enthusiast. But he had formed his purpose, and was not to be diverted from it; and, amidst straitened circumstances, he collected that knowledge of the state of the lower classes which is set forth so admirably in his novel *Lienhardt und Gertrud* (1781, 4 vols.),—a work which has exerted a remarkable influence. The description in this work of the school at Bannal contains many characteristic traits of Pestalozzi's life, at that time, at Neuhof. To illustrate this novel, he wrote, in 1782, *Christoph und Else*, besides *Abendstunden eines Einsiedlers*, in Iselin's *Ephemeriden*, in which he gives the first account of his method; a *Schweizerblatt für das Volk* (1782 and 1783); a Treatise on Legislation and Infanticide, and Inquiries into the Course of Nature in the Develepement of Man (1797),—which are full of thought (all in German). The latter work was written at a time when Pestalozzi had suffered many vexations and misfortunes. The want of all support at last obliged him to give up an undertaking which was too great for the means of an individual. In 1798, the directory of Switzerland invited him to establish a house of education at Stanz for poor children. He became here the teacher, father, and, we must add, servant to eighty children, of the lowest classes. But war, and the efforts of a party unfriendly to his scheme, destroyed this establishment after a year. Pestalozzi now took charge of a school at Burgdorf, where he also received pupils, who paid for their instruction, so that he was enabled to employ able assistants. A publication on the application of his method by mothers, which appeared in 1801, under the title How Gertrude teaches her Children (in German), and the elementary books, Book of Mothers (in German), and the *Anschauungslehre der Zahlenverhältnisse* (the Doctrine of Numerical Relations conveyed by Perceptions of Form*), found well-disposed readers. But Pestalozzi brought new vexations on himself by mingling in politics. He was a decided democrat and man of the people, who, in 1802, sent him as their delegate to the first consul; and, in 1802, he published his Views on Subjects to which the Legislature of Helvetia should chiefly direct its Attention, which made the higher classes unfriendly to him. His institution, in the mean while, flourished. In 1804, he removed, with his school, to München-Buchsee, where he entered into a nearer connexion with Fellenberg, and, in the same year, to Yverdun (q. v.), where he occupied the castle given to him by government. Pestalozzi's method has become the subject of animated discussion since the beginning of the nineteenth century, partly owing to the opposition which new schemes always meet with, and partly to the extravagance of his admirers. Pestalozzi was a man of great genius and depth of feeling, full of the spirit of self-sacrifice, devoted to the noble purpose of aiding mankind in the most effectual way, by the instruction of the poor and abandoned, in which he was warmly engaged until his death. He loved liberty, and believed that its cause would be most promoted by the education of the most neglected. His genius, moreover, enabled him to devise the most effectual plans for obtaining this end. But he was not sufficiently practical properly to direct the economy of a large establishment for instruction, and to employ to the most advantage the talents of many teachers. He was void of worldly prudence, and this want was an abundant source of vexations to him and others throughout his life. The idea of communicating all instruction by immediate address to the sensations or conceptions, and effecting the formation of the child by constantly calling all his powers into exercise, instead of making him a mere passive recipient, selecting the subjects of study in such a way that each step shall best aid the further progress of the pupil, is original with him. It is not the acquisition of skill in reckoning, reading, writing, drawing, singing, &c., but the exercise of the powers of the child by means of these subjects, which Pestalozzi makes the object of elementary education. The principles of his method are clearly developed in his *Wochenschrift für Menschenbildung* (3d and 4th vols., 1810 and 1812). This publication, with the reply of his assailant, Niederer, to the Report on Pestalozzi's Institution at Yverdun (addressed to the diet in 1810), Gruner's Letters from Burgdorf (in German, in 1806), and Johannsen's Criticism of Pestalozzi's Method (in German, 1804), afford a satisfactory view of his system. He himself did not consider his system entirely complete. From Spain, France, Prussia, and many other countries, testimonies of honor and regard were sent to him from the governments; and his pupils have spread as far as European civilization extends. His exterior was extremely simple. His negligent black dress, his broad Swiss dialect, and blunt manners, without any kind of ceremony, showed the honest Swiss. In 1818, he undertook a new edition of his complete works, the proceeds of which he destined for a new school for poor children. He died February 17, 1827, at Brugg, in Aargau.—See his autobiography, *The Scenes of my Life while at the Head of my Institutions of Education at Burgdorf and Yferdun* (Leipsic, 1826); also Ed. Biber's *Memoirs on Pestalozzi and his Plan of Education* (London, 1831).

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* Not an exact translation, but as near as we can give it, without a long paraphrase.

Pesth, or **Pest** (anciently *Transacincum*); a city of Hungary, on the Danube, opposite to Buda, with which it is connected by a bridge of boats three quarters of a mile long; 90 miles south-east of Presburg, 113 south-east of Vienna; lon. 19° 14′ E.; lat. 47° 32′ N.; population, 61,502, of which 45,000 are Catholics. Buda is the residence of the viceroy, and accounted the capital of Hungary, yet Pesth is the seat of the high courts of justice, and the place of meeting for the diet. It is situated on a plain; the streets are tolerably spacious and regular, and the houses substantial, but not elegant. It contains eleven Catholic, one Lutheran, one Reformed, and two Greek churches, two synagogues, four convents, three hospitals, a university, a gymnasium, a public library, and a royal museum. The university was transferred hither from Buda in 1784, and is the only one in Hungary. It has four faculties, and is richly endowed, having a library of 60,000 volumes, a botanic garden, an observatory, &c. The number of regular professors is 43, and the number of students is about 1000; and in the gymnasium, 701. The lectures in the university are generally given in Latin. Pesth is the most populous and most commercial town in Hungary. The Danube affords means of intercourse with a considerable tract of country. There are four annual fairs, which are numerously attended. The manufactures comprise silk, cotton, leather, jewellery, musical instruments, and tobacco.

Pestilence. (See *Plague*, and *Spasmodic Cholera*.)

Pestum, or **Pesto.** (See *Pæstum*.)

Petal; among botanists, an appellation given to the flower leaves, in opposition to the *folia*, or common leaves.

Petalite; a mineral first discovered in the mine of Uto, in Sweden, and interesting as having led to the discovery of a new alkali. (See *Lithia*.) It is possessed of the following properties: massive; fracture splintery and imperfectly conchoidal; lustre resinous; color white, occasionally tinged with red or blue; translucent; tough; hardness the same with that of feldspar; specific gravity, 2.439. It consists of silex 79.21, alumine 17.22, and lithia 5.76. If exposed to a high degree of heat before the blow-pipe, it becomes glassy, semi-transparent and white; but melts with difficulty, and only on the edges. When gently heated, it emits a blue phosphorescent light. This rare substance is found in Massachusetts, at Bolton, in a lime quarry, associated with pyroxene, sphene and scapolite.

Petard, in the art of war; a metallic engine, somewhat resembling a high-crowned hat, which is loaded with powder. Its use is, in a clandestine attack, to break down gates, bridges, barriers, &c., to which it is hung, by means of a wooden plank attached to it. It is also used in countermines, to break through the enemy's galleries, and give their mines vent.

Petecchiæ. (See *Plague*.)

Peter I, Alexiewitsch, the Great, czar and emperor of Russia, born at Moscow, May 30 (June 11, new style), 1672, was the eldest child of the czar Alexis Michailowitsch, by his second wife, Natalia Kirilowna, daughter of a Russian boiar. Blessed with a healthy constitution and a vigorous mind, Peter attracted general attention while he was but a child; and Alexis wished to pass by his two elder sons, the sickly Feodor and the feeble Ivan, and appoint Peter his successor. But the ambitious Sophia, daughter of Alexis by his first marriage, prevented the elevation of her half-brother. Feodor III, however, the successor of Alexis (1676—1682), passed over Ivan, and named Peter, yet a minor, his successor. On the death of Feodor, Peter was accordingly proclaimed czar. But Sophia excited a rebellion of the Strelitzes, by the report that Ivan had been put to death by Peter, and that her own destruction was resolved upon. When Ivan afterwards appeared, the Strelitzes exclaimed, "Thou art our czar!" "I will be so," answered the trembling Ivan, "only on condition that my dear brother shall share my throne." Peter was, therefore, crowned with Ivan, June 23, 1682. The Strelitzes again rebelled; but Peter escaped with his mother to a monastery, which protected him from the fury of the insurgents. In the mean time, the cavalry of the czar hastened to his rescue, and overpowered the rebels, thirty of whom were beheaded to prevent future seditions. But Sophia, taking advantage of the weakness of Ivan and the youth of Peter, became constantly more assuming: her name was finally subscribed to the imperial ukases with those of the two czars, and her image was stamped on the reverse of the coins. Peter, meanwhile, was silently developing his manly and warlike spirit. He formed two companies of soldiers from the young men of his own age, in whose ranks he himself served. Their commander was the young Lefort. (q. v.) Sophia considered this amusement as well calculated to remove her brother from state affairs, and heard with pleasure of the excesses in which Peter and his favorites indulged. But the accomplished and enthusiastic Lefort was instilling a large amount of valuable knowledge into the mind of the inquisitive czar, in whom the early instructions of Sotow (an experienced diplomatist), and Francis Timmermann (a German mathematician), and the lessons of his mother, had already laid a solid foundation for the improvement of his mind and the formation of his character. Sophia herself soon perceived his superior talents, when, in the beginning of 1688, he appeared, for the first time, in the privy council. In 1689, Peter's marriage with Eudoxia Federowna Lapuchin, effected through the influence of his prudent mother, withdrew him from his former orgies, and gave him a new hold on the affections of the people. Sophia, having desired to be present, as regent, at a religious celebration, at which the czars themselves were commonly present, Peter opposed it in vain; and, a few faithful Strelitzes having betrayed to him her intention to assassinate him with his wife, mother, and sister, he took refuge with them in the monastery of Troizkoi. Here he summoned to his aid general Gordon, a Scotchman, who, with all the foreign officers, immediately hastened to Peter. The czar soon found himself surrounded by numerous friends, and Sophia was obliged to take the veil. Peter then made a solemn entry into Moscow, and, in sight of all the people, embraced his brother Ivan, who left all the power in the more able hands of his brother. The first aim of Peter was the formation of a standing army, according to the European tactics. Lefort and Gordon trained the new troops, among whom were a great number of Huguenots, who had fled to Russia, after the repeal of the edict of Nantes. Peter soon saw himself surrounded by 20,000 well disciplined troops, and, at the same time, engaged in forming a naval force. His father, Alexis, desirous to trade with Persia by means of the Caspian sea, had procured a ship to be built by some Dutch shipwrights, which arrived at Astrachan, but was there burned by the Cossacks, and of the crew only two, one of whom was the gunner, Karsten Brand, returned to Moscow. Brand now became Peter's principal ship-builder, and, in 1693, the emperor sailed to Archangel in his own ship, the St. Peter, to purchase clothes for his army. In 1794, he entered Archangel with several Russian vessels, and appointed prince Romanadowski admiral of the fleet. Regarding commerce as of the utmost importance for the civilization of his subjects, he cast his eyes upon the Black and Baltic seas, into which the great rivers of his empire emptied themselves. Being at war with the Porte, he first turned his attention to the outlet of the Don; at this point, he wished to conquer Azoph, to procure an emporium on the Black sea. In July, 1695, he commenced the attack by land, but soon found it necessary to change the storming to a blockade. In the mean time, he hastened back to Moscow, embraced his dying brother Ivan, and furnished his subjects, who were suffering from the bad crops, with corn from Riga and Dantzic, in Russian ships. At the same time, he collected skilful engineers and artillerists from Austria, Brandenburg and Holland, and introduced greater uniformity into the army, of which the boiar Alexis Semenowitsch was the nominal commander, while Gordon, Lefort and Golowin were in fact its soul. The new ship-yard, at Woronesch, on the Don, furnished him, as early as 1696, with a fleet of 23 galleys, two galleasses, and four fire-ships, with which he defeated the Turkish fleet, in sight of Azoph. All relief by sea being now cut off, he pushed the siege with renewed vigor; and in two months (July 29) the Russians entered Azoph. To secure the possession of this key to the Black sea, Peter ordered fifty-five ships of war to be built, and a canal to be constructed connecting the Volga and the Don, and sent a number of the young nobles to Italy and Holland, to learn the art of ship-building, and to Germany to become acquainted with military discipline. After having suppressed (Feb. 2, 1697) a conspiracy of the Strelitzes and several noblemen against his life, in which he displayed much personal courage, he travelled in foreign countries. The affairs of the government, during his absence, were committed to prince Romanadowski and three boiars; and the Strelitzes were dispersed throughout the country, to secure the internal tranquillity of the empire. He set out on his celebrated journey in April, 1697, travelling, not in the character of czar, but as a member of an embassy, which was to visit foreign courts, according to the old Russian custom. Having passed through Esthonia, Livonia (countries then belonging to Sweden), Brandenburg, Hanover and Westphalia, he arrived at Amsterdam, where he worked, *incognito*, in a Dutch ship-yard. From Amsterdam, he went to the village of Saardam, where he appeared in the dress of his own country, and caused himself to be enrolled among the workmen, under the name of *Peter Michaeloff*. Here he lived in a little hut for seven weeks, made his own bed, and prepared his own food, corresponded with his ministers at home, and labored at the same time in ship-building. He then returned to Amsterdam, and superintended the building of a ship of war of sixty guns, which he sent to Archangel. Nothing passed him unobserved; he caused every thing to be explained to him, and even performed several surgical operations. The petition of the Jews of Holland to be received into his country he refused. He was induced, by his love for the sea, to accept the invitation of king William III to visit London. Here Peter resided in the royal ship-yard, and often declared that, if he were not czar of Russia, he would be an English admiral. He took into his service upwards of 500 persons—officers, engineers, cannoneers, surgeons, &c. He received a doctorate from the university of Oxford, and, after a stay of three months, went through Holland and Dresden to Vienna. But an insurrection of the Strelitzes induced him to hasten home, and he arrived at Moscow Sept. 4, 1698. The insurrection had already been suppressed by Gordon; but Peter erected a bloody tribunal; every day of the succeeding month saw the blood of the rebels flow; and as there were the strongest reasons to suspect his sister Sophia of being the author of this disturbance, he caused twenty-eight gibbets to be erected, and 130 of the conspirators to be executed before her monastery; and three of them, who had drawn up a petition to Sophia, were hung before the windows of her cell, with the petitions in their hands. Five hundred were banished; the corps of the Strelitzes was abolished, and the last remains finally became extinct in Astrachan in 1705. It was probably merely from personal dislike that he accused his wife Eudoxia, who was impatient of his amours, of being engaged in the conspiracy. She was banished to Suzdal, where she was obliged to take the veil, under the name of *Helen*. To reward his faithful adherents, he established the order of St. Andrew, August 30, 1698, which Golowin was the first to receive. The death of his favorite Lefort and of Gordon plunged him into the deepest grief. Menzikoff (q. v.), who rose from obscurity by his talents and activity, now became the favorite of Peter. He supplied the place of the Strelitzes by twenty-seven new regiments of infantry, and two of dragoons (in all 32,029 men), who, within three months, were disciplined and brought into marching order. Nothing but merit and length of services was regarded in the appointment of officers. Peter devoted himself with incessant activity to the internal regulation of his empire, which assumed, by degrees, the appearance of a new creation. The manner of collecting the public taxes was simplified; the German costume was introduced; beards began to disappear; the numerous retinue of the boiars was diminished; foreign travel was in a manner necessary to secure the prince's favor; printing presses were set up, and useful works introduced; schools were established in all the large towns; and new ecclesiastical institutions organized. When the patriarch Adrian died, at Moscow, in 1700, the czar left this office, but little inferior in authority to the papal, unfilled. The armistice of two years between Russia and Turkey, stipulated in the peace of Carlovitza, between the Porte and Austria, was prolonged (1700) to thirty years; but, at the same time, war was declared against Sweden. Patkul (q. v.) had now matured the alliance of the czar with Augustus, king of Poland, and no indications of good will on the part of the young Charles XII, of Sweden, could divert Peter from his designs. (See *Northern War*.) Peter occupied Ingria, and attacked Narva. The young king of Sweden (see *Charles XII*) flew to its relief, and defeated 38,000 Russians with 8000 Swedes, November, 30, 1700. This defeat did not shake the resolution of Peter. "I know," said he, "that the Swedes will often defeat us, but we are learning. Our turn to conquer will come at last." Fresh troops were immediately assembled, arms were provided, and the victory of the Russians over the Swedes on the Embach (Jan. 1, 1702), laid the first foundation for their future triumphs. Noteburg (which received from Peter the name of *Schlusselburg*) and Marienburg were taken; among the inhabitants of the latter, who were carried into Russia, was the orphan Catharine. (q. v.) After a triumphal entry into Moscow, and a short delay at Woronez, Peter returned to the theatre of the war on the Baltic, where Menzikoff had been throwing up fortifications for the protection of the new docks, at the influx of the Olonza into lake Ladoga. For the same purpose, on the first of May, Peter took Nyenschantz, a fortress at the mouth of the Neva. Four days after, with thirty small vessels, on board of which he served as captain of bombardiers, he took two Swedish ships of war at the mouth of the same river. To reward him for his services on this occasion, admiral Golowin created him knight of St. Andrew. As Nyenschantz was too far from the sea, and not sufficiently secure, Peter determined to construct a new fort, to protect the mouth of the Neva. He here built a small wooden hut, in the Dutch style, from which he superintended his new work. May 27, 1703, the foundation of the fortress was laid, which the czar called *St. Petersburg*. The work was commenced under the direction of an Italian architect, and 20,000 men, from every part of the empire, were soon employed upon it. While engaged in this work, he determined to build a city, which should serve as a commercial emporium, to connect Russia with the rest of Europe. In four months, the fortress of St. Petersburg was completed, and the city was also gradually rising. Many of the workmen, unwilling to undertake the long journey to their homes, settled here, where they were besides welcomed by the czar, as they were serviceable in erecting houses for the rich. Many Swedes, Finns and Livonians, driven from home by war, eagerly hastened to the new city, where they received the land in their own right; so that, in two years (1705), besides Vasili-Ostrov, where the first private houses were built, the island of St. Petersburg and the admiralty quarter were settled. (See *Petersburg*.) Under the direction of Menzikoff, the fortress of Cronschlot arose from the sea, at a short distance, for the protection of Petersburg. More than 8000 horses, and as many men, perished in the labor of transporting the materials for building; but in March of the following year, the cannons thundered from the walls of Cronschlot. In the mean time, Austria, Holland and England made every exertion to destroy the alliance of Peter with Augustus of Poland. Charles left his great enemy in the heart of Livonia, and marched to Saxony to compel Peter's ally to abdicate his throne. Peter, on the other hand, commenced his new operations by the destruction of a Swedish flotilla of thirteen ships on lake Peipus. Dorpat, Narva and Ivangorod were captured, and the Swedish army was finally destroyed under the walls of Pultawa (July 8, 1709). The czar, now promoted to the rank of lieutenant-general in the army, and rear-admiral in the fleet, wrote from the field of battle to admiral Apraxin in Petersburg—"Our enemy has experienced the fate of Phaëton, and the foundation of our city on the Neva is, at length, firm." Peter immediately hastened back to his favorite city on the Neva, where he made preparations to connect lake Ladoga with the Wolga, and concluded commercial treaties with France, Italy and the Hanseatic towns. Having celebrated his victory by a triumphal entry into Moscow, and reorganized the army, consisting of 33 regiments of infantry, 24 of cavalry, and 58,000 garrison troops, he commenced his campaign in Livonia and Carelia, which were conquered in 1710. The Turks, instigated by Charles XII, had, meanwhile, declared war against him. Peter immediately established a senate to administer the affairs of the empire, and, having restored to the bishoprics and monasteries the property before taken from them, in order to gain the favor of the clergy and the nation, he advanced to the Pruth, opposite the camp of Mehemed, the grand-vizier. The soldiers were here reduced to the greatest extremes from want of provision, and their condition was the more desperate on account of the defection of the prince of Walachia, and his refusal to furnish the promised supplies. Peter, nevertheless, crossed the river, but was forced to retreat, and his exhausted army was surrounded by a numerous enemy. Peter saw nothing before him but captivity or death. He was delivered from this difficulty by his new wife, Catharine (whom he had privately married in 1707, and declared his lawful wife March 6, 1711). Assisted by the field-marshal Scheremeteff, she sent to the grand-vizier proposals of peace. A large sum of money, and valuable jewels, with promises of further remittances, all without the knowledge of Peter, are said to have accompanied the letter of Scheremeteff to the grand-vizier. During this time, Peter, despairing of any favorable results from this mission, and reduced to despondency, wrote to the senate in Moscow—"If I fall into the hands of the enemy, consider me no longer as your sovereign, and obey no commands which shall proceed from the place of my confinement, though it should be signed by my own hand. If I perish, choose the worthiest among you to succeed me." July 23, 1711, the peace of Hus was concluded, in spite of all the opposition of count Poniatowski, the agent of Charles XII. Peter purchased his own safety, and that of his army and empire, by the sacrifice of Azoph. (See *Russia*, and the *Ottoman Empire*.) Cantemir, prince of Moldavia, whom Peter refused to give up on any condition, followed the czar, and continued to receive from him a pension until his death, twelve years afterwards. He now applied himself with great activity to the prosecution of the war in Pomerania against Sweden. To restore his health, he went to Carlsbad, in the summer of 1711, and, on his return to Moscow, publicly solemnized his marriage with Catharine (Feb. 19, 1712). The translation of the senate of regency to Petersburg took place two months later. In June, 1712, he again visited Carlsbad, with his wife. After having taken the waters three weeks, he proceeded to his army in Holstein, where Steenbock, the Swedish general, had obtained some successes over the Danes. He shut up this general in Tőnningen, and returned to Petersburg, to effect the conquest of Swedish Finland, and, in 1713, penetrated beyond Abo to Tavasthus, while the Swedes in Tőnningen were compelled to surrender. But the neutrality of Pomerania, proposed by Prussia, and consented to by Menzikoff, thwarted his plans: for this act, even the intercession of the czarina was hardly able to save the favorite from ruin. Peter continued his efforts to improve the Russian marine; but he was obliged to submit when the college of admiralty refused to promote him to the dignity of vice-admiral, "because he had not sufficiently distinguished himself at sea, to be preferred over other officers." His chief object was now to merit that distinction. Having obtained the naval victory at Twermunde, and completed the subjugation of Finland by the subsequent capture of the fortress of Nyslot, he was received, on his triumphal entry into Petersburg, by the vice-czar Romanadowski, with the salutation, "Hail, vice-admiral!" Perceiving the oppressions exercised by the nobility upon the lower classes, he established a board to inquire into abuses. The investigation ended in the exile to Siberia of a great number of civil officers from the first to the third rank, and strict provisions against future abuses. He did not consider it prudent to attempt to abolish slavery for the present. He repaired the devastations which the war had caused in Ingria, by settling in that country a number of rich peasants from the interior of Russia. He exercised the greatest prudence in regard to the religious contests between the Roskolnicks (those of the ancient faith) and the Orthodox, but was obliged to put to death a Roskolnick, who sought to obtain a martyr's crown by assassinating the czar. Events of this nature increased Peter's aversion to Moscow, and confirmed his determination to make Petersburg the capital of the empire. All his commercial ordinances, and his measures for the growth and embellishment of the city, were directed to this object. In the midst of these plans, he was informed that Charles XII had returned, and was now in Stralsund. But as this headstrong prince refused to consent to the neutrality of Pomerania, and thus offended England as well as Holland, he prepared for the czar the way to new and easy conquests. Stralsund was taken December 23, 1715, by the Prussians and Danes, without the aid of Peter; and in the first impulse of anger, the czar was on the point of siding with Charles, because his troops were refused admittance into the works, and were even driven back by force. Before his visit to Pyrmont for the recovery of his health, he agreed with the king of Denmark upon a landing at Schonen; in pursuance of which, he went to Copenhagen. Four fleets, Russian, Danish, English and Dutch, were united, forming a squadron of 80 sail, partly to cover the disembarkation at Schonen, and partly to make head against the Swedish fleet, which was cruising in the Baltic. The command of the combined fleet was unanimously committed to the czar; and he convoyed 100 merchant vessels, lying in the sound, by the fleet of Sweden. The landing at Schonen was abandoned by the advice of the Russian generals; this excited suspicions in the mind of the Danish king, and Peter left Denmark and took possession of Mecklenburg. For the accomplishment of certain political plans, he undertook a journey to Holland and France, towards the end of 1716. In Amsterdam, besides the naval and commercial objects of his visit, he also attended to all the subjects of art and science. His wife, who visited him after her delivery in February, 1717, remained at the Hague, while Peter, in the beginning of April, went through Brabant to Paris, where he visited all the literary, military, mechanical and other institutions and collections of art, &c., and concluded a treaty of amity and commerce with France, in behalf of himself and Prussia. His main object, the separation of France from England, and his designs on Mecklenburg, were not accomplished. In October, 1717, he returned to Petersburg, and instituted investigations into charges of abuses and acts of oppression. Prince Wolkonski, the governor of Archangel, was shot, and military courts were commissioned to inquire into accusations against others. He then went to Moscow, to judge his only son, Alexis (q. v.), who was condemned to death by the high officers of the empire. Though pardoned shortly after, he is said to have died of the agitation into which the trial and sentence had thrown him. At his funeral, which was solemnized with great pomp, the czar melted into tears. Many persons, involved in the guilt of Alexis, were executed with great cruelty. Peter treated with equal severity the nobles who oppressed the people, and did not even spare his favorites Menzikoff and Apraxin. He endeavored to introduce a more regular administration of justice by the institution of the colleges of the governments, and a legislative committee, taking the code of his father, Alexis, for the basis of his new system. A commercial college was also erected, and the commercial class treated with distinction. His amusements consisted in ornamenting his capital, collecting a cabinet of natural curiosities, encouraging art, and raising the tone of society; he, likewise, provided amusements for the court and people, by public shows, masquerades, &c. (among which the papal election, intended to expose the head of the Roman church to ridicule, was particularly remarkable). Peter now landed troops on almost every point of the Swedish coast, and commenced a war of devastation, never to be forgotten in the annals of that country. Jealousy of the growing power of Russia united Poland, Prussia and Denmark with Sweden. But Peter resisted all, and maintained his dignity in a dispute with Austria. He banished the Jesuits from the empire, because they meddled with affairs in which they had no concern, and prepared for a conflict with England. In 1719, all the English merchants in Russia were arrested, and threatened with the seizure of their property. Peter was now called to endure the severest trials, in the death of Scheremeteff, his companion in arms, and (on the 25th of April, old style) of the heir to the throne, Peter Petrowitsch, his son by Catharine, born November 8, 1717. The czar remained alone for three days and three nights after the death of his son, without food or drink; fears were at length entertained for his life. But he resumed his firmness, and one of his first measures was the institution of the "holy directing synod," designed to put an end to the hierarchy. (See *Greek Church*.) In 1720, Sweden was again devastated; the Swedish king having resolved on the invasion of Finland, with the aid of an English fleet. Peter, however, continued his negotiations, while he prepared for action, and directed the construction of the port of Royerwick. At length a third expedition against the Swedish coasts, successfully conducted by Peter in 1721, in spite of the English fleet, led to the peace of Nystädt (August 30, 1721, old style), by which Livonia, Esthonia, Ingria, with

Wiburg and Kexholm, were ceded to Russia. But the duke of Holstein, whom he had promised to aid in the recovery of Sleswick, was made the victim of political expediency. Thus, after twenty-one years, the northern war was concluded without exhausting the resources of Peter, and the power of Russia was fixed upon an immovable basis. The czar celebrated the peace by thanksgivings and festivals, and a general pardon (murderers and irreclaimable highwaymen only excepted), and by a remission of all the claims of the crown previous to 1717. The senate and the holy synod requested him, in the name of the nation, to accept the titles of "father of his country, and emperor of all the Russias, with the surname of the Great." He was proclaimed emperor on the grand celebration of the peace, Oct. 22, 1721. This title was immediately acknowledged by Prussia, Holland and Sweden, and, at a later period, by all the other powers. To prevent his great creation from falling to pieces in weak or incompetent hands, he decreed (Feb. 5, 1722), that the sovereign of Russia should have full power to elect his successor, and to change this appointment, if he should see fit. By the new judicial organization, it was provided that no actual senator should sit in a court of justice, and no president of a court of justice in the senate. The emperor now undertook his long meditated expedition to Persia, to secure the Russian trade on the Caspian sea. In 1715, 1716 and 1719, he had sent experienced naval officers to examine this sea and its coasts, and to hold vessels necessary for an expedition in readiness. In the first year of the war, he took Derbent, and built several fortified towns, which he peopled with Cossacks of the Don. The domestic confusions in Persia compelled the shah to yield, and by the treaty of Sept. 12, 1723 (to which the Porte likewise assented July 8, 1724), to cede to Russia the cities of Derbent and Baku, with their territory, and the provinces Ghilan, Mazanderan and Astarabad. After his return, Dec. 26, 1722, he instituted new examinations for maladministration. The vice-chancellor Schaffiroff, one of his favorites, was condemned to death, but, on the scaffold, his punishment was commuted to banishment. Menzikoff was sentenced to pay 200,000 roubles into the exchequer; he was deprived of a large part of his income, and flogged by the emperor's own hand: for the infliction of this punishment, Peter used his *dubina* (a cane of thick Spanish reed). Several others were disgraced or flogged, or heavily fined. July 12, 1724, Peter again conducted a fleet against Sweden, to enforce his claims on Sweden and Denmark, in behalf of the duke of Holstein: having effected this purpose, Peter returned to Cronstadt, where he celebrated by a splendid parade the creation of his navy, which now consisted of 41 ships of war, with 2106 cannons and 14,960 sailors. This great monarch employed the last years of his life in providing against the inundations, to which Petersburg was exposed in the autumn; in continuing the Ladoga canal, and in the erection of an academy of sciences (Feb. 1, 1725). He turned his attention next to the examination and punishment of state criminals; to the promotion of the labors of the legislative body; the establishment of the order of Alexander-Newsky; the improvement of the condition of the monks; the banishment of the Capuchins from Russia; and a new commercial treaty with Sweden. He also betrothed his favorite daughter Anna to the duke of Holstein, Nov. 24, 1724, having already placed the crown upon the head of his wife, Catharine, on the 18th of the preceding May, in token of his love and gratitude. He likewise provided that an education should be given to the surviving son of the unhappy Alexis, such as would become a future emperor of Russia. But Peter had long felt his strength declining, from the pains he had suffered through the strangury, ever since 1723: hence the gloom, alternating with violent bursts of passion, to which he became subject; and to this, perhaps, is to be ascribed the execution of Mons, first chamberlain, and favorite of the empress Catharine; the reason assigned for which was neglect of duty, bribery, &c. Late in the autumn of 1724, going to visit the forge and manufactory of arms at Systerbeck, he saw a boat filled with soldiers and sailors stranded, and sent a shallop, which did not succeed in getting it off; determined to gain his end, he set out for the spot himself, and, as his vessel could not quite reach the spot, he leaped into the water and waded to the boat, which he aided in getting off. But the cold which he caught rendered his condition extremely dangerous. He celebrated the new year, 1725, according to his usual custom, chose a new antipope, and ordered the demolition of the superfluous chapels, and the removal of the images. A surgical operation gave him no relief; his pain often deprived him of reason. In his intervals of sanity, he was soothed with the consolations of religion, by Theophanes, archbishop of Pleskow. In one of these intervals, he granted full pardon to Menzikoff, at the earnest desire of Catharine. He expressed a wish to speak with his favorite daughter, Anna; but when she came, the emperor was speechless. He expired February 8, 1725, in the arms of his wife, who had not left him for three nights. Peter was 53 years of age, and, according to his physicians, might have lived 40 more, if he had not so long concealed his disorder. Peter was a man of powerful and original genius, who did every thing himself, and was never the instrument of others. His ardor was joined with prudence, resolution, and a generous humanity. His violent passions and sensual excesses were the fruits of the barbarism of his nation, his imperfect education and uncontrolled power. On the centennial celebration of his accession to the throne, an equestrian monument by Falconet, representing him at full speed springing up a rock, with his hand extended, and the inscription *Petro Primo, Catharina Secunda, MDCCLXXXII*, was exposed to view in Petersburg. Voltaire wrote the life of Peter.

Peter II, emperor of Russia, grandson of Peter the Great, and son of Alexis, ascended the throne in consequence of the will of Catharine I (q. v.), in 1727, when but thirteen years old. He died in 1730, of the small pox, and was succeeded by Anna Ivanowna. (q. v.)

Peter III (Fedrowitch); emperor of Russia. As the male line of the Romanoffs ceased with Peter II, the empress Elizabeth, daughter of Peter I and Catharine I, agreeably to the order of succession enjoined by her father, appointed Charles Peter Ulrich, duke of Holstein-Gottorp, son of her sister Anna Petrowna and the duke of Holstein, her successor, in 1742; and, in 1745, she married him to the princess Sophia Augusta, of Anhalt-Zerbst (at a later period the famous Catharine II). Peter III ascended the throne in 1762. His first step was a reconciliation with Frederic II, to whom he restored the conquered kingdom of Prussia Proper, and sent 15,000 men to assist him. He established some salutary laws; but a conspiracy broke out, which put an end to his life, after a reign of six months. His predilection for the people of Holstein; his attempts to establish Prussian tactics, and to overthrow the privileges of the great, had made him numerous enemies. This conspiracy broke out in the night of July 8, in 1762. (See *Catharine II.*) He abdicated the throne July 10, but could not save his life by this means. He was, it is said, killed at Ropscha, a seat of count Rasumoffsky, July 14 (3 old style), 1762. (See *Orloff.*)

Peter, St., Church of. (See *Rome.*)

Peter, the apostle (whose original name was *Simon*), was a Galilean fisherman from Bethsaida. His brother Andrew, having been received by Jesus among his disciples, introduced Simon to the divine instructer. He promptly resolved to leave all and follow Jesus, at whose command he had made a most remarkable draught of fishes. After this event, we find him always among the followers of Christ, and one of his most confidential disciples. From the firmness of his faith, Jesus named him *Cephas* (in Greek, *Petros*), a rock, and bestowed upon him peculiar marks of affection; yet he never gave him any superiority over the other apostles, as the Roman Catholics maintain, nor did Peter himself ever assume it. On the contrary, Jesus reminded him, in their presence, of his faults, and his impetuosity; and, in the last dreadful night before the crucifixion, Peter encountered the reproving look of his master, whom he had followed at a distance to the house of the high priest, and there basely denied, from fear of punishment. Repentance for this crime purified and strengthened his noble heart, which glowed with a warm love of Jesus. His zeal and eloquence made him often the speaker in behalf of his fellow apostles on important occasions; as, for instance, at the feast of pentecost, after the ascension of Christ, where Peter had the boldness to preach the gospel publicly, for the first time, and converted several thousands by his powerful eloquence; and before the Jewish council, where he defended the new faith. His opinions had great influence in the Christian churches; and, on his proposal, the apostles and elders of the first synod at Jerusalem resolved that a conformity to the laws of Moses should not be required of the Gentile converts to Christianity. Peter probably travelled through several countries of Middle and Western Asia, as a teacher of Christianity; but the tradition that he went to Rome, and was crucified there, in the year 67, rests only on the legends of the Roman church, on which, also, the pope rests his claims to be considered the successor of this apostle. The two Epistles of Peter, in the New Testament, were written in Greek, and directed to the churches in Asia Minor. In their style, and in the exposition of doctrines, they bear strong marks of his ardent mind, hurrying from thought to thought, careless in expression, but animated and forcible.

Peter the Hermit; an enthusiastic monk of Amiens, who, about the close of the eleventh century, roused Europe to the first crusade. (q. v.) Peter, who had made a pilgrimage to Jerusalem, instigated by the difficulties he had undergone, flew, at his return, to pope Martin the Second, and, under the auspices of that pontiff, preached to an assembly of more than 4000 of the clergy, with 30,000 laymen, that met at Piacenza, the wild project of driving the Mohammedans from Jerusalem. The success of his enthusiastic harangues was proportionate to the boldness of his scheme and the ignorance of his auditors. Peter himself led the way through Hungary, at the head of an undisciplined multitude of more than 300,000 men, a comparatively small number of whom survived to reach the city. Peter distinguished himself by his personal courage at the storming of the holy city; and, having witnessed the accomplishment of his undertaking, returned to his native country, where he founded the abbey of Noirmoutier, and died its first superior.

Peterborough, Charles Mordaunt, earl of, son of lord Mordaunt, whom he succeeded in his title and estate, in 1675, was engaged in the expedition to Tangier, in 1680, in which he served with distinction against the Mohammedans. He went over to Holland in the reign of James II, and, entering into the scheme of his dethronement, returned to England with his successor, by whom he was created earl of Monmouth, and appointed first commissioner of the treasury. He succeeded to the earldom of Peterborough on the death of his uncle, in 1697, and was subsequently employed as commander of the English army in Spain, in the war of the Spanish succession. He distinguished himself greatly by his courage, activity and conduct in taking Barcelona, and obtaining many other advantages over the French, in consequence of which he was appointed generalissimo of the imperial forces, and received the thanks of the British parliament. In the reign of George I, he was made a knight of the garter, and received the appointment of general of marines. His death took place during a voyage to Lisbon, in 1735. Lord Peterborough was intimate with his literary contemporaries, and was himself a writer of poetry, some of which has been published. In the Correspondence of the Countess of Suffolk, edited by Mr. Croker, are several of his letters.—Sir Walter Scott has been said to be preparing a Life of the Earl of Peterborough.

Peterborough, Bishop of. (See *Marsh*, *Herbert*.)

Peterero, or **Patterero**; a small piece of ordnance used on board ships for the discharging of nails, broken iron, or partridge-shot, on an enemy attempting to board. They are generally open at the breech, and their chamber made to take out to be loaded that way, instead of at the muzzle.

Peters, Hugh, minister of Salem, Massachusetts, was born at Fowey, in Cornwall, England, in 1599, and, in 1622, took his degree of master of arts at Trinity college, Cambridge. After obtaining a license, and preaching in London, with great success, he removed to Holland, and, several years afterwards, to America, on account of his non-conformity. In 1636, he was intrusted with the charge of the church at Salem, and remained there five years. He did not, however, confine his attention exclusively to spiritual concerns, but took an active interest in mercantile and civil affairs; he assisted in reforming the police of the town; suggested the plan of the fishery, and of the coasting and foreign voyages; procured carpenters, and engaged in trade with great success. In 1641, he went to England on a mission to procure an alteration in the laws of excise and trade, but never returned. During the civil war, he advocated the cause of parliament by his preaching, and was appointed by Cromwell one of the licensers of ministers, and also a commissioner for amending the laws, though totally disqualified for such employment. After the restoration, he was tried for conspiring with Cromwell, and compassing the king's death, and was executed October 16, 1660, aged sixty-one years. He is accused by Burnet of having pressed the condemnation of the unfortunate Charles, but he himself declared, in his will, that he opposed it. He was a man of no learning, but of impetuous zeal, and peculiar native vigor of mind. His sermons, several of which were published, produced a great effect upon the populace by their striking, though vulgar eloquence. His coarse and familiar images never failed to answer their purpose; and he possessed the faculty of associating his thoughts in such a manner as to prevent them from being easily forgotten.

Peters, Richard, an eminent American judge and agriculturist, was born near Philadelphia, Aug. 22, 1744. He received his education in Philadelphia, at the college of which city he was graduated. In entering into active life, he was a good Latin and Greek scholar, and acquainted with the French and German languages. He adopted the profession of the law, in which he obtained early and considerable success, particularly by means of his intimate knowledge of the land laws of the commonwealth, and the fluency with which he spoke German. Even in his youth, he was distinguished for wit and humor. His powers of pleasantry were felt even by the Indians, when he accompanied a delegation from Pennsylvania to the Six Nations. The Indian chiefs, delighted with his vivacity, formally adopted him into their tribes. At the opening of the American revolution, Mr. Peters became captain of a company of volunteers, but was soon transferred by congress to the board of war, in which he continued until the year 1781, when he resigned his post, and received from congress a vote of thanks for his services. He was closely connected with Robert Morris in all the exertions and sacrifices which were made for supplying the necessities of the American army. No one possessed more curious and instructive anecdotes of the distresses and trials of the American government. Some of these are well related in the sketch of his life by Samuel Breck, esquire. After Mr. Peters quitted the war office, he was elected a member of congress. When the new government was organized, under the present constitution, president Washington offered him the place of comptroller of the treasury of the U. States. This he declined, but accepted that of judge of the district court of Pennsylvania. He occupied this station for thirty-six years, until his death, always assiduous, and highly useful, particularly in admiralty cases. Agriculture and public works formed the chief objects of judge Peters, besides his duties on the bench. He was the first president of the company at whose expense the great bridge at Philadelphia, over the Schuylkill, was built. To him its preservation may be ascribed. The country is indebted to him, also, for the use of gypsum in agriculture. In 1797, he published a relation of his experiments with it on his own farm, which was widely circulated, and produced important improvements in American husbandry. He was president of the Philadelphia agricultural society, and enriched its memoirs with many valuable communications. In private life, he was preëminent for convivial humor, and equalled, probably, any one of his contemporaries in the number and felicity of his *bon mots*. He was an exemplary husband, parent, neighbor, citizen and Christian.

Peter's, St.; one of the largest tributary rivers of the Upper Mississippi. Its course is in the Missouri Territory, and it joins the Mississippi at the falls of St. Anthony. The length of the St. Peter's is 250 miles. It affords good navigation for boats, is 150 yards wide at its mouth, and has 15 feet water.

Petersburg; a borough and port of entry in Dinwiddie county, Virginia, on the south bank of the Appomattox. It is just below the falls on that river, twelve miles above its junction with James river, at City Point; twenty-five miles south-by-east from Richmond, and 146 from Washington; lat. 37° 14′ N.; lon. 77° 20′ W. The river is navigable to this place for vessels of 100 tons. In 1815, this town lost, by fire, about 400 buildings. It has since been rebuilt of brick, and the new houses are principally three stories high. The general appearance of the town indicates business, wealth and enterprise, and it is of the first class of towns in Virginia. The town contained in 1830, 3440 whites, 2850 slaves, and 2032 free blacks —total, 8322.

Petersburg, St., capital of the Russian empire, occupying more space than any city in Europe, except London and Moscow, is situated at the mouth of the Neva, at the eastern extremity of the gulf of Finland; lat. 59° 56′ N.; lon. 29° 48′ E.; 485 miles north-west of Moscow, and about 1400 miles north-east of Paris and London. Petersburg is the seat of the court, of the senate, the holy synod, of a university, &c., &c., and, for beauty and splendor, surpasses every other city of Europe. The population, which, in 1818, was 313,000, amounted, in 1828, including the garrison, to 422,166, of which only 124,721 were females. The stranger wanders with admiration through the broad, regular streets, surrounded with the most magnificent palaces, churches with gilded towers, and other massive and colossal edifices; his eye every where rests on masterpieces of architecture. On entering the imperial gardens on the Neva, the majestic stream presents a fine prospect, with its ships, boats and bridges On both banks are rich palaces, churches, and towers glittering with gold, charming islands, and beautiful gardens. Each side of the river is lined with a broad quay for the distance of nearly three miles. The excellent water of the Neva supplies the want of springs. The czar Peter the Great laid the foundations of the city during the northern war (1703), when he constructed a fort on an island in the Neva, for its defence against the Swedes. To superintend the work in person, Peter built a small wooden hut opposite it, which is still standing, and is now surrounded with a stone building to preserve it. Public and private buildings were soon erected, and the nobles and rich merchants of Moscow, Novgorod, &c., were induced to settle there, so that, in a short time, the place assumed the appearance of a considerable city, which, during the succeeding reigns, particularly in those of Catharine II and Alexander, reached an almost unexampled degree of magnificence. The environs are level and low, in many places consisting of morasses: they therefore suffer from inundations, which sometimes occasion great ravages: in 1824, 15,000 persons perished by an inundation, which destroyed many villages, and caused great damage to the shipping. Petersburg is an open city, without walls, and only in some places surrounded with a ditch. Among the inhabitants there are a great number of foreigners, particularly Germans, who have intermixed much with the Russians, and fill many civil and military posts. The Neva divides the city into two parts, of which the southern or continental part is the largest and most populous: the northern part is again divided by a branch of the Neva. The city is divided into nine quarters—the three admiralty quarters, the foundery, the Moscow, the Jæmskoy, the Vasili-Ostrov, the Petersburg, and the Wiburg quarters. Each quarter is subdivided into districts, and these into inferior sections, at the head of each of which is a police-officer, usually a retired major. The whole organization of the police is military; and the military judges are too often entirely ignorant of the laws. When they find themselves embarrassed by the contradictory provisions of different ukases, they cut the knot, and, if the parties show any dissatisfaction with the decision, it is sealed by a blow or a kick. These inferior officers of police are subordinate to the police court in the centre of the city, the presiding officer of which is a general. In the admiralty quarter, which is the finest part of the city, is the imperial winter palace, on the banks of the Neva, the interior of which is adorned with statues and mythological figures. Catharine added to it a smaller palace, called the *Hermitage*. This building contains a rich collection of works of art, among which are a large number of original paintings of the great masters; and attached to it is a garden, in which, as in the garden of Calypso, reigns a perpetual spring. Some hundred paces distant, in the splendid street called the *Great Million*, is the Marble Palace, of colossal dimensions, which is built on a granite basement, and was given by Catharine to her favorite count Orloff. On the other side of the admiralty, which, towards the land side, is enclosed by a ditch and wall, is a walk planted with beautiful lime trees, and some of the finest buildings of the city, particularly Isaac's church, built entirely of marble (1766—1812), at an expense of 26,500,000 roubles, and which has, since its completion, been continually receiving additional embellishments. Not far off is seen the palace of the prince Labanoff, a gigantic work, even for Petersburg, and built at an enormous expense. Farther down, near the Neva, is the equestrian statue of Peter the Great, cast by Falconet. It stands in a spacious square, on an immense block of granite, about the size of a small house, and weighing above 800 tons. In Romanzoff place is a marble obelisk, erected by Catharine, in honor of Romanzoff's victories, and, in Suwarroff place, a bronze statue of Suwarroff. Among the numerous remarkable edifices and institutions, we shall mention the academy of sciences, to which belongs a very valuable library, a cabinet of natural science, and an observatory; the new exchange, finished in 1816, a splendid building, surrounded by a colonnade of 44 pillars; the house of the first corps of cadets, occupied by nearly 4000 men, and embracing a circuit of above a mile; the spacious building of the academy of fine arts, which, besides accommodations for 300—400 pupils, who are maintained and educated at the expense of the crown, contains every thing suitable for such an establishment; the second, or naval, mining, artillery and engineer cadet corps; the university (instituted in 1819), with its collections, and above 50 public institutions for education, supported at the expense of the state. These institutions lie in the Vasili-Ostrov (Basil's island), to which there is access from the continent by a bridge of boats. There are also similar institutions in other quarters of the city, particularly the great imperial gymnasium, and numerous benevolent establishments, such as military and other hospitals, the insane hospital, the institutions for the blind, and for the deaf and dumb, various medical and surgical establish-

ments, the great foundling hospital, in which about 5000 children are nursed and educated, and in which the mother is permitted to lie-in without charges, and then to leave or take away her child, whether legitimate or not, without being questioned as to her name and station. With this is connected the great pawn-house, in which loans are made, even on real property. In all the institutions for instruction (as is also the case with the high schools throughout the empire), Russian, German and French, and, in many, English, are taught: Latin and Greek are also publicly taught; and the young Russian shows a decided taste for dancing, music and painting. There are eleven public libraries: the most important is the imperial, containing 300,000 volumes and 12,000 manuscripts. Among the palaces should be mentioned the splendid Michailoff palace, built by Paul, near the summer-garden, at an expense of 10,000,000 roubles; the Taurian palace, with its admirable gardens, built and occupied by Potemkin, and much enlarged and embellished by Catharine during his absence. The roofs of all the palaces, and most of the houses, are covered with thin iron plates, varnished black or green. The summer residences also deserve to be seen on account of their natural and artificial beauties. Petersburg contains 115 churches for the established worship, and 33 for other rites. The most splendid are Isaac's church, and that of Our Lady of Kazan: the latter is of great dimensions: the nave and cupola are supported by 56 granite columns, with bronze capitals: the pavement is of different kinds of marble, the steps to the choir of porphyry, with a silver balustrade. Among the towers, the most remarkable are that of the admiralty, and that of the fortress, of a pyramidal form, and more than half covered with plates of pure gold. Public worship is performed in fifteen languages, and according to eleven different rites. Organs and other instrumental music are not heard in the Russian churches, but singing is much cultivated. There are no seats in them. The worshippers come and go at pleasure, and are crowded together without distinction of rank, each, as his feelings dictate, crossing himself, falling upon his knees, touching his forehead to the ground, and murmuring, for the hundredth time, *Hospodin pomillny* (Lord, have mercy upon me). The Lutherans, Calvinists, Armenians, &c., have churches, and there is one Mohammedan house of prayer. The most remarkable monasteries are that of Alexander Newskoi (q. v.), the residence of the metropolitan, and which contains, in a silver tomb, the bones of the saint, and the Smolnui nunnery. The commerce and navigation are very extensive: more than 1100 vessels, from all parts of Europe and from America, arrive yearly. Vessels which draw much water cannot come up to Petersburg, but unload by means of lighters at Cronstadt. (q. v.) Provisions are in general very high. As sources of amusement, we may mention the grand opera and other theatres; in winter, sleigh-riding, and, in summer, sailing on the Neva; sliding down artificial elevations, &c., &c. The climate is very severe: the sleighing continues nearly five months. (See *Russia.*) In the neighborhood are several imperial palaces, such as Peterhof, Kammenoi Ostrov, Pawlovsk and Zarskoi Zelo.

Peter's Pence; a tax which England paid, from the eighth century down to the time of Henry VIII, to the pope. The Anglo-Saxon king Ira is said to have first granted it to the pope, in 725, in order to maintain a seminary of English ecclesiastics in Rome, and to keep in order the tombs of St. Peter and St. Paul in that city. It was collected every year on St. Peter's day, one penny on every house, and considerably exceeded the income of the kings of England in the thirteenth century.

Peterwardein, or **Peterwaradin** (anciently *Acunum*); a town of Sclavonia, capital of a military district (see *Military Districts*), on the Danube, strongly fortified, 38 miles north-west of Belgrade, 216 south-south-east of Vienna; lon. 19° 37′ E.; lat. 45° 16′ N.; population, 3847. It consists of the upper fortress, overlooking the Danube, the lower fortress, the horn work, and the suburbs. It is remarkable for the defeat of the Turks by prince Eugene in 1716. (See *Eugene.*)

Péthion, or **Pétion de Villeneuve**, Jerome, a French revolutionary statesman, originally an advocate at Chartres, was chosen deputy, by the *tiers état* of that city, to the states-general. The character, conduct and talents of Péthion have been variously represented; but his great influence over public affairs is a proof that he was not destitute of ability. In the early part of his career, he acted with Mirabeau, but did not join in such of his measures as were calculated to impede the extension of liberty and equality of rights. In October, 1789, he was appointed a member of the first committee of general safety, and, December 4, 1790, was elected president of the national assembly. In

June following, he became president of the criminal tribunal of Paris, and, together with Barnave and Latour-Maubourg, was appointed commissioner to attend the return of the monarch. He was elected mayor of Paris, November 14, 1791, and, in consequence of his implication in the attack on the Tuileries, June 20, 1792, was suspended from his functions, July 6, but restored by the assembly on the 13th. His behavior on the 10th of August has, by some, been interpreted as the result of weakness, and by others as the effect of design, to avoid betraying his character as an abettor of the violence. Being nominated a deputy from the department of Eure and Loire to the convention which met in September, he became the first president of that assembly. Soon after the death of the king, Péthion was accused of having contributed to the massacres of September; but against this charge he successfully defended himself. He now, however, became the object of jealousy to Robespierre, and was included in the proscription of the Girondists, May 31, 1793. (See *Girondists*.) He made his escape, with some other deputies of the same party, to the department of Calvados, where they in vain endeavored to avail themselves of the insurrections against the terrorists. Some time after, the body of Péthion, with that of Buzot, one of his confederates, was found in a field, in the department of the Gironde, half devoured by wolves, and it was supposed that he had perished from hunger. His works were printed in 1793, in 4 vols., 8vo.

Petion, Alexandre, president of the southern parts of the island of Hayti, was a mulatto, and received his education in the military school of Paris. Being a man of cultivated understanding and attractive manners, and moreover well instructed in the art of war, he served in the French, and afterwards in the Haytian armies, with success and reputation. He was in high credit as a skilful engineer, in which capacity he rendered the most essential services to Toussaint and Dessalines, from whom he received many marks of attention, and rapid advancement in his profession. He succeeded Clervaux in the government of Port au Prince, and the command of the mulattoes, and held this post at the time of Dessalines' death. Petion was highly respected by the people for his talents and virtues; and upon the dissolution of the government by the death of Dessalines, the people of color rallied around him as their chief, in preference to Christophe, who became the leader of the blacks. Christophe, deeming himself entitled to the undivided succession of Toussaint and Dessalines, the two chiefs took up arms, and had many rencounters, in one of which particularly, a pitched battle, fought January 1, 1807, Petion was defeated and pursued by Christophe to the very gates of Port au Prince. This campaign secured to Christophe a decided and unquestioned ascendency in the northern part of the island, where his chief strength lay. Still Petion's personal popularity, and the hostility of the mulattoes to the negroes, enabled him to maintain his ground at the south; and a bloody war ensued between the rival chieftains, of several years' duration, favorable, in its issue, to Christophe on the whole, but not sufficiently so to dispossess Petion of his power. Wearied, at length, of their unavailing struggle, both parties tacitly suspended the contest, and devoted themselves to the improvement of their respective dominions. Petion's government took the form of republican institutions, consisting of himself, as president for life, and a legislative body so constituted as to be completely under his influence. Petion was a man of fine talents and of honorable feelings and intentions, but not well adapted for the station which he was called upon to fill. The Haytians, just liberated from absolute slavery, without the education, habits of thought, moral energy and rectitude of character, which are necessary in a government perfectly republican, stood in need of a ruler less kind, gentle and humane than Petion. In consequence of this, his people relaxed in their attention to agriculture, his finances become disorganized, and his country impoverished; and, disheartened at a state of things which he saw no means of remedying, he sank into a state of despondency, which ended in voluntary death. His final illness lasted only eight days, during which he resolutely refused all remedies, and every species of aliment, even to water, dying, at length, of mere inanition and despondency. His physicians, upon examining his body after death, found all its functions perfectly sound, and without any trace of malady. He died March 29, 1818, and was succeeded by president Boyer.—Malo, *Haiti* (published 1825); Franklin's *Hayti*, ch. 8.

Petition, in politics. The right of petitioning is indispensable to complete the constitutional or representative system. In absolute governments, and in those founded upon the ancient three estates, this right is often, or, we may say, almost always, denied to the citizen. As the present constitutional governments in Europe originated from one or the other of these forms, it has been considered necessary to provide for this right by express articles in their charters; otherwise it would be strange to mention this right any more than thousands of others which are not mentioned; for how can citizens be reasonably refused the liberty to make requests to governments established for their benefit? In England, there are certain laws enacted to prevent disorder, in case many citizens assemble to deliberate on the propriety of petitioning government for particular enactments. Since Charles II (1662), it has been necessary for at least three justices of the peace of the county to give their consent if more than twenty persons wish to sign a petition. It cannot be presented by more than ten persons, and must be written in a respectful tone. Large assemblies must abstain from any breach of the peace, else the riot act may be read. In respect to meetings in the open air, some laws were enacted in 1819, to remain in force for five years; for instance, that no one should appear armed; that the inhabitants of but one parish should meet; that the meeting should be advertised six days beforehand; that the petition should be signed by seven householders at least, &c. The justices of the peace may also divide large parishes of more than 20,000 souls into districts of 10,000, that the assemblies may not be too numerous. Lately, however, meetings have been held attended by many more. In France, before the revolution, when the three estates assembled to choose deputies to the general estates of the realm, it was customary to provide them with *cahier de griefs et de doléance*, which, at the breaking out of the revolution, became important. The right of petitioning was then pronounced, and was greatly abused during the revolution, as may be easily imagined, on account of the disordered state of society. The right of petitioning by large numbers was then abolished. The charter reëstablished it.

Petition of Right. The conflict between the crown and the parliament had already begun, in the reign of James I, when (1621) the house of commons framed the famous protestation that the liberties, franchises, privileges and jurisdictions of parliament are the ancient and undoubted birthright and inheritance of the subjects of England. This protestation James, with his own hand, tore out of the journal. The arbitrary measures of the first Stuart reign, the forced loans, benevolences, taxes imposed without consent of parliament, arbitrary imprisonments, the billeting of soldiers, &c., finally determined the commons to prepare a law which should protect the rights of the subject against further invasion; this they called a *petition of right*, as implying that it contained merely a corroboration or explanation of the ancient constitution, not any infringement of the royal prerogative, or acquisition of new liberties. It passed the commons and the upper house (1628), and, after some attempts, on the part of Charles I, to evade it, received the royal assent. After reciting the grievances above enumerated, it provides against their repetition as contrary to the laws and statutes of the realm, and the rights and liberties of the subject, and prays the king to declare that his officers and ministers should serve him according to the laws and statutes of the realm. The petition is given in full by Hume (note xx to ch. 51.)

Petit Jury. (See *Jury*.)

Petitio Principii, in logic; the taking a thing for true, and drawing conclusions from it as such, when it requires to be proved before any inferences can be deduced from it.

Petit Treason. (See *Treason*.)

Petrarca, Francesco, or, as he is generally called by English writers, *Petrarch*, an Italian poet and scholar, the ornament of the fourteenth century, was born of Florentine parents at Arezzo, in Tuscany, July 4 (or, according to some, July 20), 1304, and spent his youth at Ancisa in the Val d'Arno, Pisa, Carpentras and Avignon, which was then the residence of the pope. The beauty of the environs of Avignon kindled his imagination. In 1318, he studied law at Montpellier, and, in 1322, at Bologna; but he was far more inclined to the study of the ancient classics, though his father burned many of the works which the young Petrarch had procured. Soon after his father's death, he left Bologna and the study of law, and, in 1326, returned to Avignon, and entered the ecclesiastical state. His diligence, talents, learning and eloquence soon procured him distinction, while his pleasing person and manners made him the favorite of the ladies and the great. Not being much confined by the duties of his several benefices, he followed the impulse of his genius, which led him to literary pursuits. He resided alternately at Avignon, Carpi, Parma, Selvapiana, Mantua, Milan, Padua, Verona, Venice, Rome, Vaucluse, and Linterno, an estate near Milan. He also made several journeys, visiting, in 1333, the countries on the Rhine, and various cities of France, Germany and Flanders. We find interesting accounts of some of his travels in his *Epistolæ Familiares*. He also made the tour of Spain, and visited England; but of these excursions we have no account. He afterwards visited, in a public character, Naples, Venice, Avignon (in company with the celebrated Cola di Rienzi), Paris and Prague. Prelates and nobles loaded him with proofs of their esteem, and the German emperor, Charles IV, in particular, conferred on him the title of count palatine, and corresponded with him. Petrarch communicated to him his patriotic wishes, often with the most unrestrained boldness; for he was an ardent lover of his country. He exerted himself, especially, in concert with Clement VI, to induce him to unite the Guelfs and Gibelines. He made his learning of general utility by his writings, and by opening to others the access to the sources of his own information, the works of the ancient classic writers. (See *Philology.*) He brought to light Cicero's *Epistolæ Familiares*, formed a collection of manuscripts with great labor, and, with Boccaccio, promoted the study of the Greek language in Italy, which he had himself learned but imperfectly, and at a late period of his life. One of the first places, therefore, is due to him among the restorers of ancient literature. He studied the ancient philosophers, historians and poets, as far as they were then known, under the most discouraging difficulties, arising from the imperfection of the means; and he had more accurate philosophical notions, a more extensive knowledge of history, and a more correct taste, than any of his contemporaries. He paid particular attention to practical philosophy. In his lively dialogues, he endeavored to inculcate just notions of life and conduct. One of these is his book *De Remediis utriusque Fortunæ*. With equal zeal he investigated ancient history, and attended, especially, to the ancient Roman monuments, for the preservation of which he earnestly exerted himself, and began to form a collection of imperial coins. The unexampled homage which was paid to Petrarch during his life, was founded chiefly on his profound acquaintance with ancient writers, displayed in his Latin works. His historical treatises prove his extensive reading; and he also wrote an *Itinerarium Syriacum*—a Guide to the Holy Land. His Latin, indeed, bears traces of the time in which he lived; but all will readily pardon this defect. He cultivated poetry not less than philosophy and history; and genius and study conspired to make him a poet. As models, he had the ancients and Provençal bards. The merits of Dante he seems not to have appreciated. His Latin poems are not, indeed, models, like those of the ancients, but they are excellent for the age in which he lived, and excited general admiration. They are eclogues, poetic epistles, and an epic entitled Africa, in which he celebrates Scipio, his favorite hero. It was never finished; but it gained him the poetic laurel, with which he was crowned in the capitol on Easter day, 1341, with the greatest parade. This poem he considered his best. His fame soon spread throughout Italy and the neighboring countries. His reputation as a poet now rests on his beautiful Italian poems, published in 1327—1354, in which he far excelled his predecessors the Troubadours. He was led to write poetry in his mother tongue, by his passion for the beautiful Laura. (q. v.) The ardent youth had just returned from the university of Bologna to Avignon, when, one morning in Passion-week (April 6, 1327), he went to the chapel of St. Clara, according to his custom, where he saw Laura, full of youthful beauty and grace, and his whole soul was absorbed with the most ardent passion, which was increased by the charms of her mind. Laura was touched by his addresses; for she knew how to appreciate his merits, his constancy and his admiration; yet she never forgot her character and her honor. She always kept him within the limits of propriety, and only vouchsafed to him a smile or a kind word, when moved to compassion by his fruitless love. He often resolved to tear himself away from her, because he felt how much his passion checked the activity of his mind. But he felt, likewise, that this passion had inspired him to high efforts, that he might deserve the regard of Laura. (See the canzone *Gentil mia Donna.*) He betook himself to travelling, and mingled in the bustle of the world; but in vain. The image of the object of his passion never left him. (See his beautiful canzone *Di Pensier in Pensier.*) He endeavored to calm his passion by solitude; but it became more violent amid the hills and woods of Vaucluse, where he spent the principal part of his time in deep study. (See *Epistle* 116, and his sonnets and canzoni.) This love, however, did not extinguish all others; he had a natural son, who died of the plague in 1361, and a daughter, who was married to a nobleman. The news of Laura's death, which reached him in Verona, April 8, 1348, was a severe blow to him; yet he did not cease to celebrate her. In his old age, however, he declared that he was ashamed of his youthful infatuation, and that he regretted having written his amatory poems. Yet he did not censure his love so much as its excess, and as he advanced in years, he became a contemner of the female sex. The account of his early passion is to be found chiefly in his Latin epistles, his treatise entitled My Secret, or On the Contempt of the World, and the poem the Triumph of Death. After a lapse of 500 years, we still enjoy the fruits of his love in those admirable sonnets and canzoni which paint the joys and sorrows, the admiration and desire, and all the tender thoughts and emotions, of a poetic and glowing love. Petrarch is truly the prince of love poets; some of his poems may be censured for their monotony and the traces of the age in which they were written, for cold thoughts and allusions, false wit, a tasteless play upon words, and far-fetched epithets. But the greater part of them will ever be looked upon as among the most perfect masterpieces of lyric poetry. His poems contain many difficult passages, but numerous annotators have undertaken to explain them; as Gesualdo, Castelvetro, Velutello, Tassoni, and others. They have been published more than 200 times. His Latin works were printed at Basle, 1496 and 1581, and often separately. Petrarch was likewise constant in his friendship. This we know from collections of his letters, which are likewise useful for their historical information. He was religious after the fashion of his age, venerated what was esteemed sacred by his contemporaries, observed fasts, bequeathed a portion of his property to the churches, revered saints, especially the Virgin Mary (to whom he wrote a canzonet full of humility and devotion), and relics. If we add to these characteristic traits, his gratitude to his instructers, faithfulness to his patrons, and universal benevolence, we can easily account for the esteem which he enjoyed; especially when we remember that he had a pleasing exterior to recommend his merits. In his youth, he was well-formed, lively, fond of the most beautiful dresses (see *Var. Epist.*, ix), and vain, and he played on the lute. His diligence was very great, and his talents brilliant. The events of the latter part of his life are his journey to Rome to attend the jubilee; the restoration of his property by the city of Florence; his invitation to the chair of professor in the new university in that city, which he refused; his visit to Italy, after the death of Clement VI; the distinguished reception which he met from Galeazzo Visconti, at Milan, and Charles IV, at Mantua; the long desired removal of the papal chair to Rome, under Urban, in 1367, which was brought about by his influence; and his mediation of the peace between the Carrarese and the Venetians, in 1373. He died in 1374, as is supposed on the night of July 18, in the village of Arquà, near Padua, where he had retired to end his days. He was found dead early in the morning, in his library, with his head resting on a book. He was interred, with great pomp, at Arquà, although he had forbidden all ceremony. His valuable library he bequeathed to the republic of Venice; but no portion of it is now to be found. The account of his life is derived chiefly from his own writings—his Letters, his Secret, and his Address to Posterity on his life and character. The best of his biographers are the abbé de Sade (a descendant of his Laura), Tiraboschi, Baldelli, Fernow, Wismayr, Ugo Foscolo, Woodhouslee, Ginguené, &c.

Petrel (*thalassidroma*); a genus of oceanic birds, well known to seamen by the name of *Mother Carey's chickens*. They are found in every part of the world, on the ocean, at great distances from land, generally at twilight, or in stormy weather. They feed on small marine animals, and seeds of sea-weeds, and appear exceedingly fond of fat or grease, for which, and for the animals put in motion, they will follow in the wake of ships for great distances. They breed in rocks adjoining the sea, forming their nests in cavities; the female lays two eggs. They fly rapidly, and generally close to the water; and, when in pursuit of food, they suspend themselves by extending their wings, and appear to run on the surface of the water. Buffon says it is from this circumstance that they are called *petrels*, after the apostle Peter, who walked on the water. The appearance of these birds is considered by seamen to presage a storm, and it is thought peculiarly unlucky to kill one of them. There are four species, which are so closely allied to each other as to be generally confounded. C. Bonaparte, who paid much attention to this genus, designates them as follows:—*T. Wilsonii* (stormy petrel); deep sooty black; tail even; wings reaching a little beyond its tip; tube of the nostrils recurved; tarsus one and a half inch long. *T. Leachii* (fork-tailed petrel); brownish black; tail forked; wings not reaching beyond the tip; tube of the nostrils straight; tarsus one inch long. *T. pelagica;* sooty black; tail even; wings reaching a little beyond it; tube of the nostrils almost straight; tarsus seven eighths of an inch long. *T. oceanica;* brownish black; tail slightly emarginate; wings reaching more than an inch beyond it; tube of the nostrils recurved; tarsus nearly one and three fourths of an inch long. (See *Puffin.*)

Petrifactions. (See *Organic Remains.*)

Petrobrusians. (See *Sects.*)

Petroleum. (See *Bitumen.*)

Petronius, Titus, surnamed *Arbiter,* a Roman author, notorious for his licentiousness and obscenity, was born at Marseilles, and lived in the court of Nero. He was, for a time, the favorite of the emperor, who made him master (arbiter) of his voluptuous banquets and revelries. But he finally fell a victim to the suspicions of the tyrant, by whose command he was obliged to put himself to death. The corruption and dissoluteness of Roman manners, at that period, are portrayed in the fragments of the *Satyricon Libri,* in which Petronius describes, in prose and in verse, the profligacy of the times, and which are, therefore, valuable, at least as a picture of manners. Some attribute it, on account of several allusions, to another author, who lived for some time, in the reign of Commodus, in Naples. The best critical edition is that of Burmann (Leyden, 1743, 2 vols., 4to.); there is a later edition, by Anton, on the basis of Burmann's (Leipsic, 1781). The supposed supplements, lately discovered, are spurious.

Petty. (See *Lansdowne.*)

Petty Bag; an office in chancery, in England, the three clerks of which record the return of all inquisitions out of every county, and make all patents of comptrollers, gaugers, customers, &c.

Peutinger Table; a map showing the military roads of the greater part of the kingdom of the Visigoths, drawn, it was formerly believed, for Theodosius the Great. It is called after Conrad Peutinger, a German scholar, born 1465, and who died in 1547. Among his papers was this famous map. Conrad Celtes had found it in the Benedictine monastery of Tegernsee, borrowed and not returned it. Such a *mappa mundi in rotulo* was extant in that convent, in 1502; and the *Tabula Peutingeriana* at Vienna, is probably the same which Werinher, a poet, made or copied in 1190. Celtes gave this map to Peutinger, who intended to publish it. After his death, it disappeared for many years, until Marx Welser published fragments of it, under the title of *Fragmenta Tabulæ antiquæ ex Peutingerorum Bibliotheca* (Venice, 1591). It was not found entire, among Peutinger's manuscripts, until the eighteenth century, when Scheyb published a beautiful impression, with remarks, folio (Vienna, 1753). The manuscript of the map is at present in the imperial library at Vienna. The characters and figures show that the map is not the original. Docen thinks that it belongs to the twelfth century. A new impression of this ancient map was published in Leipsic (1824), not entirely free from faults, with a treatise by Mannert. A new edition, with commentaries, has been announced by Dr. Tross, of Münster. Peutinger was the first who collected Roman inscriptions on stone, in a small work,—*Romanæ Vetustatis Fragmenta* (Augsburg, 1505). He wrote, besides, other valuable works on the decline of the Roman empire. Peutinger long held important public offices.

Pewter consists of tin alloyed with a quantity of copper, or other metallic bodies, as the experience of the workmen has shown to be the most conducive to the improvement of its hardness and color, such as lead, zinc, bismuth and antimony. The best sort of pewter is formed from antimony 17 parts, tin 100 parts. The French add a little copper to this kind of pewter. A very fine silver-looking metal is composed of 100 pounds of tin, 8 of antimony, 1 of bismuth, and 4 of copper.

Peyronnet, Pierre Dénis, count de, was born in 1778, at Bordeaux, where he studied law. When a young man, he was distinguished as a *petit maître* and a beau. He became very zealous in the cause of the Bourbons, when the English and Spanish troops entered France, in consequence of which he was appointed president of the tribunal of the first instance, at Bordeaux, in 1816, and, after two years, *procureur-général* at the *cour royale* of Bourges. When M. Decazes (q. v.) was at the head of the government, Peyronnet was a warm constitutionalist, and pronounced a discourse at Bourges, which might have come from a member of the left side. But he soon saw that a devotion to the royalist doctrines would advance him more rapidly than adherence to constitutional principles, and he changed sides accordingly. He was called to Paris to support, before the peers, the act of accusation of the conspirators of Aug. 19, 1819, jointly with Marchangy and Vatisménil, and was distinguished for his zeal. Périer said of him, at a later period, in the chamber, in reference to his zeal on this occasion, that he had demanded the heads of twenty persons. Soon after, he was elected deputy of the department of the Cher, and, a little later, appointed *procureur-général* at Rouen, whither, however, he never went. He became the favorite of a lady then very powerful with Louis XVIII, and, when Villèle's administration was formed, Peyronnet, to the utter astonishment of the public, was made, in December, 1821, keeper of the seals, having, as it was universally asserted, no claim whatever to this important office; and the only explanation of this surprising phenomenon was believed to be the favor of Mad. de Cayla. (See *France*, and *Villèle*.) His first measures were the suppression of the liberty of the press, depriving those accused of political libels of trial by jury, and empowering the royal courts to suppress journals which had a tendency to disturb the public peace, religion, &c., and authorizing the crown to establish the censorship by a mere ordinance. His language was often the subject of ridicule in the chamber, whilst his measures were but too much calculated to excite anxiety, and his overbearing manner gave offence. Aug. 17, 1822, Peyronnet, Corbière and Villèle were made counts. In order to remove those judges who were not thoroughly royalist, yet by the constitution were immovable, he conceived the plan of diminishing the number of courts. In November, 1822, he procured an ordinance by which the bar was subjected to many of the old restrictions, and to the influence of the keeper of the seals, and arbitrarily interfered in several legal processes. After the congress of Verona, he declared himself in favor of the war against Spain, in opposition to Villèle, and, shortly before the death of Louis XVIII, he effected the establishment of the censorship, which Charles X abolished when he ascended the throne. In 1824, he issued a circular, in which he ordered his agents to denounce to him all persons, employed in his department, who would not vote for the ministerial candidates: the question of septennial elections of the chamber of deputies was then to be decided. In 1825, Peyronnet brought forward, in the chamber of peers, the cruel law against sacrilege, which was adopted with some modifications. He is supposed to have first suggested the disbanding of the national guards. In Villèle's ministry he was noted as the most efficient member of the cabinet, in carrying into execution the measures of the president of the council, and was one of the three obnoxious ministers, popularly known under the name of the *triumvirate*, composed of Corbière (q. v.), Villèle and the keeper of the seals. The elections in the autumn of 1827 resulted in the entire discomfiture of the ministry, and, on their resignation (Jan. 4, 1828), the three above named went to swell the number of peers, already increased, through their ordinance of Nov. 5, 1827, by the elevation of seventy-six new members. (See *Villèle*, and *France, History of*.) The Polignac ministry, which had succeeded to the short-lived cabinet of Martignac (Aug. 9, 1829), was already at open war with the nation, when the public astonishment and indignation were increased by the nomination of M. de Peyronnet to the place of minister of the interior (May 20, 1830). The measures of this administration are related elsewhere. (See *Polignac*, and *France, History of*.) The position of Peyronnet in the ministry placing him in correspondence with the prefects and agents of the internal administration, his zeal, energy, activity, capacity, and unshrinking readiness to go all lengths, made it obvious that he was called in to manage the elections, and secure a ministerial majority by the unsparing employment of fraud, terror and violence. All these arts, however, backed by the royal proclamation to the electors, failed before the resolute purpose of the nation; the liberal party was completely successful in the elections (June and July), and the ministry determined on violent measures. Peyronnet is understood to have been opposed to this plan previous to the elections; but it was finally adopted between the 10th and 15th of July; and to him was intrusted the drawing up of the ordinance changing the electoral laws, which, with the other three, was signed July 25, and published in the next *Moniteur*. On Thursday, the 29th, the ministry resigned, and, in the middle of August, Peyronnet, with several of his colleagues, was arrested at Tours, and imprisoned at Vincennes; on the 30th of September they were impeached, before the peers, of high treason. The trial came on December 15. M. de Peyronnet was defended by M. Hennequin; the accused himself read a memorial in his defence. On the 21st, he was sentenced to imprisonment for life, and, on the 23d, was again transferred to the prison of Vincennes, and thence to the castle at Ham, a village near Peronne, in the north of France. In 1831, the ex-minister published a work on the jurisdiction of parliaments.

Peyrouse, La. (See *Lapérouse.*)

Pfeffel, Christian Frederic, a jurisconsult and diplomatist, born at Colmar, in 1726, became secretary to the ambassador from Saxony to France, and was employed in several negotiations. In 1758, he was sent to Ratisbon, during the diet, as *chargé d'affaires*, and thence to the court of Bavaria, where he remained until 1768, when he was recalled to Versailles, and became jurisconsult to the king. In 1790, he was sent, by the French ministry, to Deux Ponts, to treat of the indemnities of the German princes, and was still there when he received his dismission from his public functions; his property was confiscated, and he was placed on the list of emigrants. He remained in the service of the duke of Deux Ponts until 1795, when he retired to Nuremberg, and died in 1807. His principal works are, *Abrégé Chronologique de l'Histoire, et du Droit publique d'Allemagne; Recherches Historiques concernant les Droits du Pape sur la Ville et l'État d'Avignon; État de la Pologne; Dissertations Historiques.*

Pfeffel, Gottlieb Conrad, a distinguished German author, was born in Colmar, Alsatia, in 1736, of Protestant parents. He went to Halle in his fifteenth year, to study law. In 1757, he became blind. This misfortune he bore, for more than fifty years, with wise cheerfulness, and became a most useful citizen. In 1773, he established a Protestant school at Colmar, with the approbation of the king of France, in which he educated many excellent scholars. The revolution put at end to the institution. In 1803, he was made president of the newly-established Protestant consistory at Colmar, and died May 1, 1809. He is one of the best poets of Germany, in the department of the fable, and tales in verse. His poetical works are collected in his *Poëtische Versuche*, 10 vols., 2d edit. (Tubingen, 1817), and his prose writings in *Prosaische Versuche* (Tubingen, 1810, 8 vols.). His biography forms the last volume.

Pfyfer, Louis, born at Lucerne, in 1715, entered the French military service at an early age, distinguished himself in the campaigns from 1734 to '47, in 1748 was made major-general, and, in 1763, lieutenant-general. At Lucerne is still shown a plan, in relief, of a part of the interior of Switzerland, executed by him. It is remarkable for its minute accuracy and truth of representation.

Phædon, of Elis; a scholar of Socrates, and founder of a school of philosophy in Elis. The dialogue of Plato, on the immortality of the soul, which contains the last conversation of Socrates with his scholars, while he was in prison, also bears this name. Mendelssohn has given the same title to his conversations on the same subject; but the dialogues written by Phædon himself are lost.

Phædra; daughter of Minos, king of Crete, and of Pasiphaë, sister of Ariadne, and wife of Theseus. Happening to meet Hippolytus, her step-son, whom she had never before seen, and whom she did not know to be the son of Theseus, she was inflamed with an ardent passion for the beautiful youth. He would not reciprocate her passion, and, to satisfy her revenge, she accused him to her husband of a criminal attempt upon her honor. The father cursed his son, and Neptune soon carried his execrations into effect by bringing upon Hippolytus a violent death. When this event was known in Athens, Phædra repented of her crime and hanged herself. According to some, she was killed by Theseus. Sophocles and Euripides, two of the most celebrated poets of antiquity, have taken Phædra as the subject of their tragedies, which are now lost. Racine has followed their example.

Phædrus; a Latin fabulist, born in Thrace. He was probably brought to Rome, as a slave, at a tender age, and entered the service of Augustus, who liberated him. Nothing is known of his life, except that he suffered much from the tyranny of Sejanus under the reign of Tiberius; spent his days probably in moderate circumstances, and died at an advanced age. He wrote five books of fables in iambic verse, which are distinguished for their purity and elegance of expression, and for their simplicity and instructive thought. He borrowed his materials, in part, from Æsop, and mixed with them his own inventions. The work of Phædrus is no where mentioned among the ancients, and Seneca goes so far as to say the Romans had no fables in the manner of *Æsop*. The moderns knew nothing of his writings till 1595, when a copy was found by Francis Pithou in the library of St. Remi at Rheims. He sent it to his brother Peter, who gave it to the world. The best editions are by Burmann (2 vols., Leyden, 1727, 4to.), and the most complete by Schwabe (Brunswick, 1806). Christ first doubted the genuineness of the fables of Phædrus. Several modern philologists regard them as spurious, and the work of a later age. This is certain in regard to thirty-two new fables, first published by Cassitti, at Naples, under the name of *Phædrus*, but made known previously to the learned Burmann by Dorville from Perotti's manuscript. These fables have been several times reprinted since 1812.

Phaëton; the offspring of the sun and Clymene, and brother of the Heliades. To please his unfortunate mother, and to satisfy those who doubted whether the sun were his father, he desired the latter to grant him a favor. Phœbus imprudently promised it, unconditionally, and swore by the Styx that he would, at all events, keep his word. Phaëton now asked permission to take his father's place in the chariot of the sun, and would not be denied. But he had scarcely mounted the flaming car, and taken the reins, when the celestial horses, despising their weak driver, turned out of the path, and set every thing on fire. The Ethiopians, on the left, were blackened by the near approach of the sun; and, when the chariot was drawn over the earth to the right, Jupiter, with his bolts, plunged the thoughtless charioteer into the river Po. His sisters found him there lifeless, and lamented him.—The god of the sun was also called *Phaëton* (the enlightener). In modern times this name is given to a sort of high, light, open carriage.

Phalanx; a body of troops among the Greeks, armed with long spears, and arranged in the form of a square. The momentum of their onset usually decided the battle. The phalanx at first consisted of 4000 men, but was afterwards doubled, and even quadrupled. It was first doubled by Philip of Macedon, and the double phalanx is hence often called the *Macedonian phalanx*. The phalanx was commonly sixteen deep, and the men were drawn up shield to shield; the rear ranks, which could not reach the enemy with their spears, held them upon the shoulders of those before them, and thus formed a sort of wall to stop the progress of the missiles of the enemy. The phalanx is much celebrated in the history of ancient wars, on account of its invincibleness.

Phalaris. This prince, notorious for his cruelty, was a native of Astypalea, in Crete. On his banishment from that place, he went to Sicily, where he made himself master of Agrigentum, about B. C. 571, and sought to maintain his power by cruelty and severity. The most famous instance of his cruelty was the barbarous punishment of the brazen bull prepared by Perillus of Athens. The victim was shut up in the body of the bull, and roasted slowly by a fire underneath. The screams of pain uttered by the unhappy man were made, by some machinery, to resemble the lowing of a bull. Phalaris caused the first experiment to be tried on the inventor. After a reign of about sixteen years, he was killed during a rebellion. The letters which bear the name of *Phalaris* have been fully proved to be spurious by Bentley, in his celebrated controversy with Boyle. The latest edition is that by Lennep (Gröningen, 1777, 2 vols., 4to.).

Phalarope (*phalaropus*). A genus of shore birds, belonging to the family *longirostres*, Cuvier. They live in small flocks on the sea-coasts, sometimes, but rarely, in fresh water lakes; feed on aquatic insects and molluscous animals. The female builds on the shore among the grass, laying from four to six eggs. Both sexes incubate, and attend on the young, which leave the nest, run about and swim, soon after they are hatched. These birds fly well, and swim expertly, resisting the heaviest waves, but never dive. Their flesh is oily and unpalatable. They inhabit far north, migrating in the autumn and winter to the temperate regions of both continents. There are but three species as yet known, which have been placed by authors in different families, and even orders. C. Bonaparte has thus arranged them:—Sub-genus, *phalaropus*. *P. fulicarius* (red phalarope). This is the *P. hyperboreus* of Wilson; blackish, varied with ferruginous; beneath rufous; winter dress cinereous, beneath white; inhabits both continents, but rare and during the winter only in the U. States. Sub-genus, *lobipes*. *P. hyperboreus* (northern phalorope). Inhabits both continents; very rare in the U. States, but common in the Hebrides. It is black, varied with rufous, beneath white, sides of the neck bright rufous; winter plumage cinereous, beneath white. Sub-genus *holopodius*, *P. Wilsonii* (gray phalarope). This is the *P. lobatus* of Wilson; bluish gray, beneath white, with a chestnut patch and a black band on each side of the neck; summer plumage unknown; inhabits the north of America, migrating in winter as far south as the coast of Mexico.

Phamenophis. (See *Memnon.*)

Phanar. (See *Fanariots.*)

Phantasm. (See *Spectre.*)

Phantasmagoria. (See *Lantern.*)

Phantasos. (See *Morpheus.*)

Phaon. (See *Sappho.*)

Pharaoh. (See *Egypt.*)

Pharisees; the members of a sect among the Jews, which seems to have arisen in the time of the Maccabees. Besides the books of Moses, they held a multitude of doctrines and traditions, supposed to have been received orally from that lawgiver, with the annotations of later teachers, after the captivity. These traditions they thought themselves obliged to observe as strictly as the laws of Moses. They were distinguished from the Sadducees by their zeal for their traditions, and their belief in the resurrection of the dead. Their ambition, and the narrowness of their religious views, made them hypocrites. With a lax morality, they thought to obtain the favor of the Supreme Being by external holiness and ascetic expiations; and they sought to gain the good opinion of men by a high tone of justice and piety. The Pharisees numbered in their ranks the most distinguished lawyers and statesmen in Judea; and, as persons of all conditions, not excluding females, were admitted into their society, they gained a political influence which often decided the fate of the Jewish nation under the Maccabees and Asmonæans, and brought into their hands the power which had been left to the great council by the Romans in the time of Christ. The doctrines of the Pharisees have prevailed in the religion of the modern Jews, and in the Talmud. The term *Pharisee* is also applied to a person whose character resembles that of the Pharisees of the New Testament.

Pharmacolite. (See *Lime*, vol. vii, p. 558.)

Pharmacopœia (from φαρμακον, medicine, and ποιεω, to make); the same as *dispensatory*. (q. v.)

Pharmacy, Pharmaceutics (φαρμακον, drug); the art of preserving, preparing, compounding and combining substances for medical purposes; the art of the apothecary. As these substances may be mineral, vegetable or animal, theoretical pharmacy requires a knowledge of botany, zoology and mineralogy, and, as it is necessary to determine their properties, and the laws of their composition and decomposition, of chemistry also. In a narrower sense, pharmacy is merely the art of compounding and mixing drugs according to the prescription of the physician. These processes and substances have been described under their appropriate heads. (*See the separate articles.*) The preparation of medicines was at first performed by the physicians themselves, who also administered them to their patients; and it first became a distinct branch of medical science at Alexandria, towards the beginning of the fourth century B. C., (see *Medicine*), when some physicians devoted themselves solely to it. Afterwards it became the employment of particular individuals (*rhizotomists*, simplers), and the medical science and the apothecary's art thus became separated from each other. Mantias, a pupil of Herophilus, in Alexandria, seems to have been the author of the first pharmacopœia, having published a work on the preparation of medicines. Zeno of Laodicea distinguished himself by the invention of a large number of compound medicines. Princes also studied the medical sciences, particularly in reference to the preparation of poisons and antidotes. Thus Attalus, last king of Pergamus (B. C. 134), was noted for his medical skill, and his knowledge of plants, and several preparations which he invented, are known to us; as, for instance, an ointment of white lead or ceruse, &c. Mithridates (q. v.), king of Pontus (123—62 B. C.), invented an antidote, composed of fifty-four ingredients. Heras, of Cappadocia, wrote a work on pharmacy at Rome (B. C. 49). Musa, the celebrated physician to Augustus, prescribed several medicinal preparations, which afterwards continued in use under his name. A large collection of compound medicines is enumerated in the works of Scribonius Largus (A. D. 43). Menecrates, physician to Tiberius, was the inventor of the diachylon, or litharge plaster. Damocrates (A. D. 47) invented, and described in verse, the preparation of several medicines, tooth-powder, ointments, &c. Philo of Tarsus (A. D. 23) discovered a sedative, composed of opium, saffron and other ingredients, and called, from him, *philonium*. Æsclepiades Pharmacion (in the time of Trajan, A. D. 97) prepared several celebrated medicines. Dioscorides, who probably flourished in the reign of Nero (A. D. 34), is yet distinguished for his knowledge of the properties of plants, and first exposed the fraudulent practices made use of in the composition of several medicines, and prescribed the preparation of some new ones; as, for instance, of ceruse, calamine, flowers of zinc (*nihil album*), &c. Pliny the Elder (79) also rendered important services to pharmacy by his researches into natural history. In Galen's time (160—200) several physicians in Rome employed themselves in the preparation of cosmetics. When, with the decline of the Roman empire, science and learning became extinct in Western Europe, superstition and blind empiricism prevailed in the medical department, and pharmacy made no progress. But, in the East, particularly in Alexandria, where art and science continued to flourish, chemistry and pharmacy were cultivated with ardor by the Arabians. They studied the works of the Greek writers, and from them we derive many important improvements in the pharmaceutic art. The caliph Almansor (754) founded in Bagdad the first public *apotheca*, or druggist's shop. The names of several medicines, such as alcohol, julep, &c., are of Arabian origin, and it is most probable that we owe to them the first official dispensatories, or pharmacopœias. Sabor Ebn Sahel, about the middle of the ninth century, published a pharmacopœia; and, in the twelfth century, Abul Hassan, physician to the caliph of Bagdad, published a similar work, which subsequently served as the standard work of the Arabian apothecaries. The Arabian apothecas were under the particular direction of the government, and were subjected to a strict supervision, particularly in regard to the quality and price of drugs. It is related of Affhin, an Arabian general, that he examined in person the medicine chest of his army, to see if every thing mentioned in the dispensatories was provided. With the revival of medical science in the West arose the celebrated school of Salerno. The apothecary's trade was now (in the thirteenth century) regulated by law, and apothecaries and grocers were obliged to sell their articles at fixed prices. Apothecas, or apothecaries' halls, could be established only in certain places, and two men of standing were appointed in the large towns to superintend them. The most important medicines were compounded under their inspection, and frauds were severely punished. There is a work by Saladin of Ascoli, physician to the grand constable of Naples, in the fifteenth century, which, besides other curious materials relating to the state of the apothecaries' trade at that period, contains a list of the books which an apothecary ought to have, with moral precepts and directions for each month. The principal pharmaceutical work of the middle ages was the *Antidotarium* of Nicholas Praepositus of Salernum, which was celebrated as early as the twelfth century. In France, the apothecaries' halls were first subjected to the supervision of the medical faculty in the fifteenth century. In Germany, the apothecaries were merely dealers in drugs, which they imported from Italy. The physicians also prepared their own prescriptions. In most cities, the apothecaries were likewise confectioners, and the magistrates, in their contracts with them, stipulated for a certain quantity of confectionary, to be delivered in the city hall. The reforms of Paracelsus in medicine (sixteenth century) introduced some changes into pharmacy. Many chemical preparations were adopted, and the use of mineral specifics, as, for example, antimony and mercury, became more common. Still, the operations were conducted without reference to scientific principles; but, since the middle of the seventeenth century, the natural sciences have continued to make great progress, and pharmacy, as well as medicine, has experienced the effects of the improvement. In pharmaceutical operations, the apothecaries' weight is used, in which twenty grains make a scruple, three scruples a drachm, eight drachms an ounce, and twelve ounces a pound. The following abbreviations and signs are used by physicians in writing their prescriptions:

℔.	pound.
℥.	ounce.
ʒ.	drachm.
℈.	scruple.
Gr.	grain.
C.	(*congium*) gallon.
O.	(*octans*) pint.
f. ℥.	fluid ounce.
f. ʒ.	fluid drachm.
♏.	minim.
Gut.	(*gutta*) drop.
Cochl.	(*cochleare*) spoonful.
Cochl. maj.	(*cochleare majus*) table-spoon.
Cochl. min.	(*cochleare minus*) tea-spoon.
Manip.	(*manipulus*) handful.
j. i.	one.
ss.	half.
āā or ana.	of each.
q. s.	(*quantum sufficit*) as much as necessary.
p. e.	equal parts.

Pharo; a game. (See *Faro*.)

Pharo of Messina. (See *Faro of Messina.*)

Pharos; sometimes used, in English, for *lighthouse*: in some other languages, it is the ordinary term for these edifices. The name is derived from the island of Pharos before Alexandria, which protected the port of that city. On the eastern promontory of the island stood the lighthouse of Alexandria, so famous in antiquity, and considered one of the wonders of the world, built 300 years B. C. It is said to have been 500 feet high. (See *Lighthouse.*)

Pharsalia; the plains in the neighborhood of Pharsalus, a town of Thessaly, where Cæsar defeated Pompey B. C. 48. (See *Cæsar*, and *Lucan.*)

Phases, in astronomy, denote the various appearances of the moon, and the superior planets, at different ages; also the appearance of the moon or sun when eclipsed. Metaphorically, the word is used by historians, to designate various stages and appearances of one great historical event, for example, a revolution.

Pheasant (*phasianus*). The genus *phasianus* includes not only the pheasants proper, but also the common domestic fowl. (See *Cock.*) The true pheasant is distinguished by having a long tail, the feathers of which are of different lengths, and overlay each other like tiles. The most common species is the *P. colchicus*, originally a native of the East, but now naturalized in many parts of Europe, especially in the southern parts. In their wild state, these birds feed, like the rest of the gallinaceous tribe, upon vegetable food: when young, however, they principally subsist on insects, and are exceedingly fond of ants' eggs. The female constructs her nest in some retired spot, forming it of leaves, and without grass. The number of eggs she lays is various; for, if they are carried away, she continues, like the common hen, to lay an additional quantity. The males and females only associate together in the first spring months. When disturbed, they make a whirring noise, like the partridge, and, from being a large mark, and flying slowly, they are readily brought down, even by an inexperienced sportsman. There are several varieties, produced by climate and domestication, among which is the white. The golden pheasant (*P. pictus*), a native of China, is remarkable for the beauty of its plumage: the prevailing colors are red, yellow and blue, and it is distinguished by a crest upon the head, which can be raised at pleasure. The iris, bill and legs are yellow. The tail is long, and richly tinted, and from above it arise a number of long, straight feathers, of a scarlet hue, mixed with yellow. Cuvier is of opinion that the description given by Pliny of the phœnix (lib. x, cap. 2) is meant for this bird. Another fine species found in China is the silver pheasant (*P. nycthemerus*). This is of a silvery white color, with very delicate black lines on each feather, and black belly. The most splendid bird of this genus, and perhaps of the feathered race, is the argus pheasant (*P. argus*). This species, which is of a large size, is an inhabitant of the mountains in the island of Sumatra, and perhaps of others of the Indian islands. The male has a very long tail, and the feathers of the wings are large, and much produced, the whole thickly covered with ocellate spots, giving to the bird a most extraordinary aspect. There are several other species of this genus, which inhabit different parts of Asia: none, however, have yet been discovered in America. The bird known under the name of *pheasant* in Pennsylvania, &c., is a tetrao or grouse. (q. v.) Judging, however, from the success which has attended the naturalization of the peacock, Guinea fowl, and other birds of warm climates, it is probable that many, if not all the species of pheasant, might be raised in the U. States, especially in the Southern States. At the same time, it should be stated that the attempts hitherto made to introduce the common pheasant into Pennsylvania have failed, not, however, from the severity of the winter, but from various accidental causes.

Phelloplastics (from φελλος, cork); the art of representing works of architecture on a reduced scale in cork, invented by an artist in Rome, between 1780 and 1790, and improved by a German named Mey. The phelloplastic works afford very fine models, and are cheaper than models in wood, gypsum, stone, or *papier maché*.

Pherecydes; a celebrated sage of ancient Greece. He is regarded as the first who wrote in prose, on philosophy and religion, although his expression, as is natural, inclines much to poetry. He was a native of the island of Syros, flourished in the sixth century, B. C., and was a contemporary of Thales. The fragments of his work on nature and the gods, are merely allegorical thoughts. Sturz collected them (2d edit., Gera, 1798). Pherecydes considered Jupiter or αιθηρ, Time or χρονος, and the earth, which he esteemed a chaos, as the elements of all things. According to Cicero, he was the first that taught the immortality of the soul; he was also the instructer of Pythagoras.

Phidias of Athens; the great master of statuary, who, in the age of Pericles (about the 84th Olympiad, or B. C. 444), embodied the lofty ideal of a Pallas-Minerva and an Olympian Jove. According to Böttiger, Phidias executed three statues of Pallas, which were all in the Acropolis in the time of Pausanias. One colossal statue of Pallas, he cast in bronze (taken from the tenth of the spoils won on the plains of Marathon), for the temple of Minerva Polias, in which she was represented as a guardian deity. Mys wrought upon her shield, in relievo, the battle of the Centaurs, from designs by Parrhasius. Near the statue stood the primitive possessor of the mount, an owl. It is related of this statue, that mariners, doubling the promontory of Sunium, still saw her crested helmet and the point of her spear. The second of his most famous statues was made of ivory and gold. It was denominated the statue of the Parthenon, or Parthenos (the virgin), and measured, with the pedestal, about 41½ English feet. Instead of marble, he made use of ivory, which admitted of a much softer and more brilliant polish. It was, in reality, formed of wood, overlaid with ivory. He threw over it a garment of gold, either beaten or cast with such exquisite skill, that it might be put off or on at pleasure, and could be weighed, at any time, by the treasurer of the temple. It weighed 44 talents. During the government of Demetrius Poliorcetes, it was carried off. The eyes were of marble, let in, and probably painted, according to the prevailing custom. The goddess stood upright, with the ægis on her breast and a spear in her left hand. There was likewise an immense serpent, or dragon, near her, supposed to be that of Ericthonius. In her right hand was the goddess Victoria, formed in like manner of ivory, with a vestment of gold, four cubits high. By her side stood the great shield, representing, on the convex side, the battle of the Amazons, and on the concave, the battle of the Titans. The different parts of the statue, as well as the pedestal, were wrought in relievo. Thus, for example, Phidias introduced himself and Pericles on the shield. A complete description of this statue is given in Böttiger's *Andeutungen über die Archäologie* (Observations on Archæology). The third statue, in bronze, of a smaller size, which was called, emphatically, the *beautiful*, on account of its exquisite proportions, was purchased by the people of Lemnos, and sent by them to the Acropolis of Athens. The Olympian Jupiter of Phidias represented the serene majesty of the king of heaven, and was ranked, for its beauty, among the wonders of the world. Jupiter was here seen sitting upon a throne, with an olive wreath of gold about his temples; the upper part of his body was naked; a wide mantle, covering the rest of it, hung down, in the richest folds, to his feet, which rested on a footstool. The naked parts of the statue were of ivory; the dress was of beaten gold, with an imitation of embroidery painted by Panænus, brother of Phidias. In the right hand stood the goddess Victoria, turning towards the statue, and carved, like it, out of ivory and gold; she was holding out a band, with which she appeared desirous to encircle his olive crown. In his left hand, the divinity held a parti-colored sceptre, made of various metals skilfully joined, and on the sceptre rested an eagle. Power, wisdom and goodness were admirably expressed in his features. He sat with the air of a divinity, presiding among the judges of the games, and dispensing the laurel wreaths to the victors, calm in conscious dignity, the *beau ideal* of Greek anthropomorphism. Cicero (*De Oratore*, ii) relates that the artist was led, by a passage in the Iliad, to imagine such a figure. The statue was surrounded with magnificent drapery, which was drawn aside only on particular occasions, when the deity was to be exhibited. A sense of greatness and splendor overwhelmed the spectator. There was also a splendid statue of Nemesis, at Rhamnus, falsely ascribed to Argoracritus, the favorite of Phidias. He made it of a block of Parian marble, which the Persians had designed as the monument of their victory. From Phidias that elevated style, which is so much admired, is commonly supposed to have been derived; and modern antiquarians maintain that after his death Grecian art began to decline. Phidias was, moreover, an architect. By the exertions of Pericles, Athens was made the most magnificent city in Greece. During his government, which lasted twenty years, the city was adorned with more costly temples, colonnades, and other works of art, than Rome, though mistress of the world, could boast in seven centuries. Every one was anxious to do something for the ornament of the city of Pallas. The best materials and most skilful artists were there in abundance. Phidias superintended these improvements; and the sculptures with which the Parthenon, for instance, among other buildings, was adorned, were partly his own work, and partly in the spirit and after the ideas of this great master. Phidias received great honors from the Athenians, for whose fame he was laboring, while Pericles had the sovereign power; but he was subjected to a change of fortune when the popularity of his patron declined. He died in prison. The cause of his death is unknown.—See Emeric David, *Examen des Inculpations dirigées contre Phidias* (Examination of the Charges brought against Phidias; Paris), and C. O. Müller, *De Phidiæ Vita et Operibus, etc.* (the Life and Works of Phidias; Göttingen, 1827, 4to.).

Philadelphia, the second city in size in the U. States, is situated in a county of the same name, in the state of Pennsylvania, between the Delaware and Schuylkill rivers, five miles above their junction, in lat. 39° 57′ N., and lon. 75° 10′ 59″ W. from Greenwich, and is about 120 miles distant from the Atlantic ocean, by the course of the river, and about 55 miles from it in a direct line to the south-east. The name is composed of two Greek words,—φιλος, a friend, and αδελφος, a brother. Proud, the historian (upon what authority is not known), states that the Indian name of the place was *Coaquenaku*, which Heckewelder translates into "the grove of tall pines." The city was founded by William Penn, in the year 1682. The original city was a parallelogram, extending west about two miles from the Delaware, beyond the Schuylkill, and north and south a little more than a mile. As commerce and other business increased, the buildings were naturally extended along the Delaware, and now reach from the lower part of Southwark to the upper part of Kensington, near four miles, and from one river to the other. The main streets, running north and south, are twenty-five in number, and those from east to west fourteen, in the city proper, all of which cross at right angles, except Dock street. These streets are handsomely paved with round stones, and kept remarkably clean. The foot-ways are paved with brick, and defended from the approach of carriages by ranges of curb-stone. Numerous smaller streets and alleys divide the different squares, and are paved in like manner. The whole number, in the city and districts, is about 600. The streets vary much in width. Broad street is 113 feet; High street, or Market street, 100; Arch street, 60 feet; and the others of various width. Common sewers have been formed under most of the main streets, which carry the filth into the Delaware, and preserve the health and contribute to the comfort of the inhabitants. The houses exhibit an appearance of neatness, uniformity and commodiousness, and most of them are ornamented with white marble steps and window sills. Sept. 5, 1774, the members of the first congress convened at Philadelphia, where they adopted that celebrated declaration of rights which may be considered the preface to the declaration of independence. Within two years after, the eternal separation of the U. States from England was decreed by that august body, and proclaimed to the people from the state-house. Congress continued to sit at Philadelphia until the approach of the enemy, at the close of the autumn of 1776, compelled them to retire to Baltimore. The city fell into the possession of the British forces Sept. 26, 1777, and they occupied it until the 18th of June following. During the remainder of the war, it happily escaped the ravages of hostile operations. It was also the seat of the state government until the year 1800. For municipal purposes the legislature has, from time to time, established corporate governments in different parts of the suburbs, so that Philadelphia is divided into the following districts: the corporations of the city of Philadelphia, of the Northern Liberties, Kensington, Spring Garden, Southwark and Moyamensing. The municipal government of the city proper is vested in a mayor, a recorder, fifteen aldermen, and a select and common council, besides subordinate executive officers. The recorder and aldermen are appointed by the governor of the state, and hold their offices during good behavior. The mayor was annually chosen by the councils from among the aldermen until April 10, 1826, when the legislature passed an act authorizing the councils to elect him from the body of the citizens. The members of the select and common councils are annually chosen by the people, on the day of the general election. They receive no compensation, sit in separate chambers, and each body has a negative on the legislative acts of the other. The mayor, recorder, and aldermen, or any four of them, whereof the mayor or recorder must be one, constitute the mayor's court, which has the same jurisdiction of offences committed in the city, as the quarter-sessions in their respective counties. The aldermen have respectively the powers, and perform the duties, of justices of the peace, as to all matters arising within the city. This form of government was established in 1796. The city proper sends seven representatives and two senators to the state legislature. The population of Philadelphia, according to the census of 1810, was 96,664; in 1820 it was 119,325; and in 1830 it was 167,811. Philadelphia now contains about one hundred places of public worship, few of which are distinguished for architecture or extent. Institutions for the relief of the unfortunate, sick and helpless abound, at the head of which is the Pennsylvania hospital, which was founded in the year 1750. The buildings occupy an entire square, and in the front of them stands a leaden statue of William Penn. The public alms-house is built upon the square adjoining, the annual expenses of which are about $50,000. The asylums for widows and orphans, and the institution for the deaf and dumb, deserve a passing notice. The latter building was erected in 1824; it is constructed of granite. The whole front is 96 feet 6 inches, and 63 feet in depth. The annual expenditures are about $11,000. The institution was established in April, 1820. In the following year it was incorporated, received a donation of $8000 from the state, and an additional appropriation, for the support and education of fifty indigent pupils of the state, for the term of three years. By subsequent acts, this grant for charity students has been made to continue until April, 1833. In 1828, the legislature of Maryland appropriated $3500 annually, for five years, for the education of indigent deaf and dumb persons, of that state, in this institution. The legislature of New Jersey also has, for several years past, provided for an indefinite number of her own deaf and dumb poor, not exceeding twelve at any one time, to be educated at the option of their parents, either in this institution or in the one at New York. These, together with occasional private donations and funds, derived from paying-pupils, received from any part of the country, at the rate of $160 per annum, and the life and annual subscriptions of the society which established the institution, are the means by which it has been hitherto sustained and enabled to accomplish much good. The number of its pupils, in May, 1830, was seventy-six. The object of this school is to give a good common education to deaf-mutes, and to train them to industrious habits. The course of instruction varies from four to six years. The system pursued is that of the abbés De l'Epée and Sicard. A grand lodge of modern masons appears to have existed in Philadelphia as early as 1732. The masonic lodge (a building more remarkable for its size than architectural beauty) was erected in 1809. The house of refuge, so highly important to public morals, was projected in 1826. Private donations being inadequate to the undertaking, legislative assistance and a liberal donation from the county of Philadelphia enabled the managers to complete the buildings. A plot of ground, 400 feet in length from east to west, and 231 feet in breadth from north to south, bounded by streets on all sides, has been enclosed by a stone wall 20 feet in height. The main edifice is 92 feet in length by 30 in depth. The law authorizes the reception of all males under the age of twenty-one, and females not exceeding that of eighteen. Two hundred and seventy-nine persons can be lodged. The present amount of the annual expenses is about $12,000. There are, at present, thirteen banking institutions within the city and the incorporated districts. The banking-houses of the United States bank, and the bank of Pennsylvania, are fine specimens of classical architecture. The walls are composed entirely of white marble. The state-house, on the south side of Chestnut street, between Fifth and Sixth streets, will remain a feature of interest as long as it lasts, as the spot where the declaration of independence was first promulgated. There are three theatres, which do credit to the city and the architects. The city library owes its origin to the public spirit of Franklin. It was commenced as early as 1731, and incorporated in 1742, In 1790, the present neat and ornamental edifice was erected on the east side of Fifth street, opposite to the state-house square, and over the front door is placed a marble statue of its founder, executed in Italy, and presented by William Bingham, Esq. The number of books, at present, is about 24,000, exclusive of the Loganian collection, which is about 11,000 volumes. Opposite this library is the Athenæum, a valuable institution, established in 1814. The library consists of about 5300 volumes, mostly books of practical utility and the current and popular literature. In the reading-room are regularly received more than seventy newspapers of the U States, besides English and French, and, occasionally, papers from other parts of the world. There are various other public libraries, the most valuable of which is that belonging to the academy of natural sciences, containing about 5000 vols., and the philosophical society, whose collection is about 6000 vols. Peale's museum, the most extensive collection of objects of natural history in America, occupies handsome apartments, built expressly for its accommodation, in the Arcade. The academy of fine arts was founded in the year 1805. It was originally intended for works of statuary, but the walls are now hung with fine pictures, some of them by masters of the highest celebrity. The university of Pennsylvania is distinguished by the celebrity of the medical school attached to it. The new halls were built in 1830: they are spacious, and in a handsome style of architecture. The medical class varies from 400 to 500 annually. The hall of the Jefferson medical college is also a spacious building. There are three prisons, one in Walnut street, a second in Arch street, and the Eastern penitentiary, which occupies about ten acres of ground. This is the only edifice in this county calculated to convey an idea of the external appearance of the castles of the middle ages, which contribute so eminently to embellish the scenery of Europe. The U. States' mint was established in 1791, and, by several successive acts of congress, has been continued at Philadelphia. In 1829, a new building for the mint was commenced in Chestnut street, near Broad street: it is a splendid building, faced with marble, and presents a front of 122 feet, divided into a portico 62 feet long, and two wings each of 30 feet. The building is of the Ionic order, taken from the celebrated Grecian temple on the river Ilissus, near Athens. The marine asylum (not yet finished) stands on the eastern bank of the Schuylkill, a short distance south of the city line. It is 386 feet long, consisting of a portico of 90 feet, supported by eight Ionic columns, and two wings each 148 feet. The greatest pride of Philadelphia is the magnificent works by which the city is supplied with pure and wholesome water. Nothing of the kind has been done, on this side of the Atlantic, that will bear comparison with the arduous and expensive operation of introducing the Schuylkill water. In 1797, a plan was adopted, which was to form a reservoir on the east bank of the Schuylkill, from which water was to be thrown, by a steam engine, into a tunnel, and thence carried to another engine-house, at the centre of the city, where it was to be again raised, by a second steam engine, into a reservoir, from which it was to be distributed, in pipes, through the city. By this means, in January, 1801, water from the Schuylkill was first thrown into the city. An experience of ten years proved that a sufficient supply could not be obtained by this method. The steam engines were liable to frequent failures from accident, and the derangement of one stopped the whole supply of the city. Accordingly, in 1811, a new reservoir was created, and two large engines constructed, which worked alternately, so that one was always ready, in case of accident to the other. It was soon found, however, that a supply of water, adequate to the demand, could not be obtained, although the annual expenses were enormous, and it was evident that some other power besides steam must be used for the purpose. In 1819, the project of damming the Schuylkill, and erecting the works at Fairmount, was commenced, the whole cost of which was, in 1824, $432,512, and the entire amount expended on the successive operations, $1,443,585. The consumption, in the summer months, is about 3,000,000 gallons for twenty-four hours, and the reservoirs will contain a supply for ten days, at that rate. The iron pipes, through which the water is conveyed to the city and districts, make, together, an extent of about sixty miles, and the sum annually paid for the use of the water is upwards of $60,000. The experience of years has shown that the power is sufficient to raise many times as much water as the city can possibly require for its consumption, and, consequently, that there is a surplus power applicable to other purposes. The provision against destruction by fire, in Philadelphia, is excellent. There are twenty eight engine companies and sixteen hose companies, and the sum of $5000, appropriated by the city councils, is usually distributed among these companies annually. There are two bridges across the Schuylkill, one within the city bounds, and another a few hundred yards north of the north line. They are beautiful and substantial structures. The whole length of that on Market street, including abutments and wing walls, is 1300 feet, of which the wooden platform, between the abutments, is in length 550 feet. The total cost of this bridge was $235,000, besides which the company paid $40,000 for the purchase of the site. The Fairmount bridge consists of a single arch, of 340 feet, 4 inches span, resting on abutments of stone. This bridge was erected in 1813, and the total cost was $150,000. The public markets constitute a prominent feature. That along High street is nearly two thirds of a mile in extent. There are two shot-towers within the city, one of which was the first erected in the U. States. The barbor of Philadelphia, from the peculiar features of the Delaware river, is more liable to be impeded by ice than that of New York or Baltimore; but, independent of that circumstance, it possesses, perhaps, as many natural advantages as either of the others. The Delaware is not navigable to this city for ships of the line of the first class. The arrivals at the port of Philadelphia, in 1829, were 374 vessels from foreign ports, and 2210 coastwise; in 1830, 415 foreign, and 3287 coastwise; in 1831, 396 foreign, and 3206 coastwise. The aggregate tonnage of the shipping of Philadelphia, on the 31st of December, 1828, was (permanent and temporary) 104,080 tons. The vessels built in 1829 amounted to 3524 tons; in 1830, to 2590, and, in 1831, to 3525 tons. The inspection of wheat flour, in 1830, was 473,876 barrels. By the will of the late Stephen Girard, Philadelphia has received a munificent donation, amounting to several million dollars, devoted to important public objects.

Philadelphists. (See the end of the article *Boehme.*)

Philæ, or **Jezireт el Birba** (i. e. Temple island); a small island of the Nile, on the borders of Nubia and Egypt; lat. 24° 1′; five miles south of Essouan or Syene. It contains the remains of some remarkable monuments of the ancient Egyptians, among which are four temples, an avenue of majestic columns, several obelisks, a monolithic temple, &c. The whole island is, in fact, covered with temples, in the largest groups, and in the highest state of preservation of any in Egypt. (See the great French work, *Description de l'Égypte, Antiquités*, i; or Burkhardt's *Nubia.*)

Philanthropinism. (See *Schools.*)

Philemon and **Baucis**; a pair celebrated in ancient Greece for their faithful affection even in advanced age. Fable (Ovid's *Metam.* viii) relates the following story concerning them. Jupiter and Mercury, travelling through Phrygia, in a human form, found no one willing to entertain them except this aged couple, who received them hospitably, washed their feet, set before them a rustic meal, and prepared a couch for their repose. The deities then took their hosts to a neighboring mountain, and when they looked behind them, they saw their village sunk beneath the waves; but the cottage in which they had welcomed the pilgrims, had become a magnificent temple. Jupiter promised also to fulfil all their wishes; but they only asked that they might die together as servants in that temple. At length, at a very advanced age, as they sat at the temple door, they were at once transformed, Philemon into an oak, and Baucis into a linden. They were conscious of their change, which came gradually upon them, and while they were able to see and speak, they took the most affectionate leave of each other. The trees were considered sacred, and long remained before the temple.

Philemon of Athens, a Greek poet, contemporary with Menander, to whom only he was considered as second in dramatic composition. A few fragments of his writings have come down to us, which were originally collected by Hugo Grotius. Cumberland has printed an English translation. The time of his birth has been assigned to B. C. 373; and he is said to have died through excessive laughter at seeing an ass eat figs from a countryman's basket, B. C. 274.

Philidor, Andrew, a musician of Dreux, of some reputation in his profession, but far more celebrated as the best chess-player of his age, was born in France, in 1726, and became a page in the band of the king, where he made so great a proficiency, that he composed a successful mottet, with full choruses, before his twelfth year. As he grew up, his fondness for the game of chess increased into a passion, in order to indulge which, he travelled over great part of Europe, engaging every where with the best players. He continued in England some time, during which he printed his Analysis of Chess—a book which has since gone through numerous editions, and is considered a standard work. On his return to France, he devoted his attention to the comic opera, of which, with Monsigny and Duni, he may be considered the reviver. There are twenty-one operatic pieces of his composition, of which *Le Maréchal*, produced in 1761, ran more than a hundred nights. Philidor afterwards returned to England, and, in 1779, set the *Carmen Seculare*, esteemed the best of his works. His death took place in 1795, in London, where he was very generally esteemed for his integrity and suavity of manners. A short time previously to his decease, he played two games of chess at the same time, blind-fold, against two of the most distinguished amateurs, one of which he won; the other was a drawn game.

Philip, king of Macedon, father of Alexander the Great, flourished in the middle of the fourth century before the Christian era. He went to Thebes as a hostage, when he was very young, and received an excellent education in the house of the celebrated Epaminondas. At the age of twenty-two, B. C. 361, he ascended the throne of Macedonia, which he found tottering and surrounded by numerous enemies. His genius soon succeeded in establishing it, and raising it to a pitch of greatness which it had never before attained. He freed himself from his enemies, partly by concessions, and partly by force of arms. In a short time, he made war also upon his peaceful neighbors; and, encouraged by his successes in Thessaly and Thrace, he sought gradually to extend his dominion over all Greece. The dissensions of the different states favored his designs. The subtle Philip well knew what use to make of this division. When, therefore, he was summoned to aid the Thebans against the Phocians who had plundered the treasury of the temple at Delphi, he did not neglect this opportunity to carry into effect his ambitious purposes. The subjugation of the Phocians was very soon accomplished; but the treacherous conduct of Philip towards his allies opened the eyes of the Greeks; several states formed a league with the Athenians to oppose him, while others condescended to use the most disgraceful flattery towards the artful conqueror. A wound which he received on his return from a campaign against the Scythians, delayed the blow which was to prostrate the liberty of Greece, till, at last, the great victory at Cheronæa (B. C. 338) decided its fate. Philip assembled at Corinth the deputies of all the Grecian states, and dictated the terms of peace, which deprived them of freedom. When he was on the point of causing himself to be chosen commander-in-chief of the army which was to march against the Persians, he was assassinated, in the forty-seventh year of his age, by Pausanias, a young Macedonian, who was hired to commit this act by the Persians. This prince, the inventor of the Macedonian phalanx (q. v.), united, with the highest talents of a commander, the intrepidity of the bravest soldier. But ambition and love of power were the most prominent features in his character, which often led him to the most unwarrantable actions.

Philip II, king of Spain, son of the emperor Charles V and of Eleonora of Portugal, called, by the Spanish writers, the *Prudent*, and by the Protestants, the *Demon of the South*, was born at Valladolid, in 1527. Naturally cold, grave, and reserved, but sagacious and active, he was educated with care by Spanish ecclesiastics, by whom he was early imbued with bigoted sentiments. At the age of sixteen years, he married the Portuguese princess Mary, and was intrusted by his father with the administration of Spain, under the direction, however, of the duke of Alva. In 1547, Charles sent for him to come to Brussels, and Philip was received with every demonstration of joy by the Netherlandish estates; but his austerity and his preference of his Spanish courtiers soon rendered him an object of dislike. His father was desirous of having him declared his successor on the imperial throne, by the diet assembled at Ratisbon, in 1550, but his cold and proud manners were so unfavorable to his cause, that he was sent back to Spain. Having lost his first wife, Philip soon after married Mary I of England (1554), who was much older than himself (see *Mary*); but his unpopularity among the English rendered his residence there so disagreeable, that he soon left the country and retired to Flanders. In 1555, Charles V (q. v.) abdicated his crown in favor of his son, who thus became the first sovereign of Europe. Veteran troops, able generals and statesmen, a yearly revenue of 30,000,000 ducats, rich colonies and industrious provinces had raised Spain to an unexampled degree of power. Philip received from his father, in the presence of the states-general, and with the most impressive solemnities, the sovereignty of the Low Countries, and, a few weeks afterwards, assumed that of Spain. Charles retired to a monastery, on a moderate allowance, which, through the neglect of his son, was irregularly transmitted to him. In 1556, Philip concluded a truce with France, which was broken by the French, at the instigation of pope Paul IV, the same year. Paul having declared that Philip had forfeited the kingdom of Naples, a fief of the holy see, the latter found himself obliged to send the duke of Alva against the head of the church, who was forced to accede to an armistice. Philip then went to England, and prevailed on Mary, by the threat that he would otherwise never again set foot in her dominions, to declare war against France. A considerable English force, accordingly, joined the army under Philibert, duke of Savoy, and the count of Egmont, which was besieging St. Quentin. The French, under Montmorency, were entirely defeated, August 10, 1557. Philip, who, during the battle, was occupied in prayer, joined the army after it was over. (See *Escurial.*) Instead of taking advantage of this victory to march to Paris, Philip was satisfied with occupying St. Quentin, Ham and Chatelet, and, soon after, under the impulse of superstitious fears, concluded a disadvantageous peace with the pope. On the death of Mary (1558), which was hastened by the neglect of her husband and the loss of Calais, Philip sued for the hand of Elizabeth, who was too well acquainted with his temper and the aversion of her subjects against him, to listen to his addresses. The peace of Cambray (1559), finally terminated the long struggle of the French and Spanish monarchies, under conditions favorable to the latter. The marriage of Philip with the daughter of Henry II, king of France, who had been previously designed for don Charles, son of Philip, was stipulated by one of the articles of this peace. In the course of the year, Philip returned to Spain, leaving the government of the Low Countries in the hands of his natural sister, Margaret, duchess of Parma. His arrival was celebrated by the inquisition, with an *auto da fé*, and his reverential conduct during the burning of his subjects is highly praised by the Spanish writers. Soon after this, the troubles in the Low Countries broke out. (See *Netherlands*, and *Granvella.*) Philip established the inquisition there for the suppression of heresy, and refused to mitigate its rigors, declaring that it was better to be without subjects than to be the ruler of heretics. The blood thirsty Alva (q. v.) was sent (1567) to execute the cruel policy of the Spanish court. The counts of Egmont (q. v.) and Hoorn, with a great number of less distinguished sufferers, perished on the scaffold. Philip remained a cold and unmoved spectator of the horrors caused by his own rigorous policy. At the same period, a tragic event in his family tended to strengthen the gloom of his character. His son, don Carlos (q. v.) died in prison (1568), where he had been thrown on a charge of treason, and two months after, died Elizabeth, the beautiful and virtuous wife of Philip. The beautiful Anna de Mendoza, the wife of his favorite and minister Ruy Gomez de Silva, was at this time his mistress. An insurrection of the Moors in Granada was quelled in 1570, and Philip married the archduchess Anne of Austria, his fourth wife. In the following year, his fleet assisted at the battle of Lepanto (q. v.), gained by don John of Austria over the Turks. The duke of Alva was recalled from the Netherlands in 1573. His successor, Requesens, died in 1576, and was followed by don John of Austria, who was empowered to make some concessions; but, soon after his death (1578), the union of Utrecht was formed (January 23, 1579). The Belgic Netherlands, however, were reduced by the prince Alexander Farnese, who next commanded the Spanish forces in that quarter. The throne of Portugal, having become vacant by the death of Sebastian, was claimed by Philip, who sent the duke of Alva to take possession of that kingdom. Philip himself soon followed him thither (1581), and received the homage of the Portuguese estates. The assassination of William (q. v.), prince of Orange, in 1584, was received with the most indecent expressions of joy at the Spanish court, but William's son, Maurice (q. v.), was a still more formidable enemy. A rupture with England (see *Elizabeth*) soon followed, and the Armada was fitted out for the conquest of that kingdom. (See *Armada.*) When the duke of Medina Sidonia, who had the command of the expedition, appeared before Philip with the information of its destruction, the king thanked him, because he had not despaired of his country. "The will of God be done," he added, coldly; "I sent my ships to fight with the English, not with the elements." This event was a death-blow to the Spanish monarchy. Philip sent assistance to the leaguers in France (see *League*), and commanded the duke of Parma to invade the kingdom. Even after Henry IV's conversion to the Catholic faith, he continued his hostility to that prince, who, in consequence, declared war against him. The war with England was meanwhile continued, and Spain not only suffered much by losses in her American colonies, but was compelled to witness the capture of Cadiz and the destruction of the shipping in that port by Howard (q. v.) and the earl of Essex. (See *Devereux.*) Prince Maurice of Nassau had also gained the ascendency in the Low Countries, and seven of the provinces had declared themselves independent. Re verses and disease, at length, broke Philip's spirit; he became desirous of restoring tranquillity to his dominions, and concluded the treaty of Vervins with France. He died the next year, Sept. 13, 1598. The gout, dropsy, and a violent fever, had afflicted him the two last years of his life; but he retained his senses and his activity to the last. Sores on his breast and knees, the consequence of his early debaucheries, disturbed his last days, and from their corrupt matter issued swarms of lice, which the physicians were unable to destroy. He bore his sufferings with great firmness, and punctiliously observed all the rites of the Catholic church. Philip was a prince of considerable capacity, and he entered with facility into the details of affairs. His pomp, generosity, activity, and just administration, when it did not interfere with his own private plans, made a strong impression on the minds of men; but his boundless ambition, his severity and his gloomy superstition made his reign a period of war and of bad passions, and exhausted the immense resources of his empire. Among his instruments was poison, which he familiarly called his *requiescat in pace* (rest in peace). With his reign began the decline of the Spanish monarchy. His Life by Campana is a panegyric on his character. Different views will be found in the History of the Reign of Philip II, by Watson, and in Dumesnil's *Histoire de Philippe II* (1 vol., 8vo., Paris, 1822).

Philip III of Spain. (See *Spain.*)

Philip IV of Spain. (See *Spain.*)

Philip V of Spain. (See *Spain.*)

Philip II, Augustus, king of France, born 1165, ascended the throne on the death of his father, Louis VII, 1180. One of his first measures was the banishment of the Jews from the kingdom, and the confiscation of their property. This was done under pretence of their being guilty of various crimes; but the real purpose of the measure was to get possession of their wealth. Philip next endeavored to repress the tyranny and rapacity of the nobles, which he effected partly by art, and partly by force. In 1190, he embarked at Genoa on a crusade to the Holy Land, where he met Richard Cœur-de-Lion (see *Richard I*), who was engaged in the same cause in Sicily. (See *Crusades.*) The jealousies and disputes which divided the two kings induced Philip to return home the next year; and he took advantage of Richard's imprisonment in Austria to seize some of the English fiefs in Normandy. (See *John.*) This enterprise was in direct violation of the oath by which the two princes had mutually bound themselves to attempt nothing against each other's dominions during the continuance of the crusade; and, on Richard's delivery, he commenced a war against Philip, which continued till the death of the former in 1199. Philip, on his return from the Holy Land, had married Ingelburga, sister of the king of Denmark; but, having taken some disgust at her, he finally procured from his bishops a divorce, under pretence of consanguinity, and married Agnes, daughter of the duke of Méran. On the complaint of the king of Denmark, the pope declared this marriage null; and, on Philip's refusing to receive Ingelburga, pronounced the interdict against France.* The king was therefore obliged to yield, and restore her the honors of a wife and queen. (See *Innocent III.*) In his subsequent wars with John (of which an account is given in the article *John*), Philip conquered all Normandy, Touraine, Anjou and Maine, so that, of all the English possessions in France, Guienne alone remained. Philip also took part in the crusade against the Albigenses (q. v.), and died in 1223, after a reign of forty-three years. This prince was an able general and sovereign; he extended the boundaries of the kingdom, and first raised the royal authority from its dependence on the great vassals. He improved the military organization of his realm, founded useful institutions, constructed roads, and favored learning. (See *France.*)

Philip IV of France. (See *France.*)

Philip VI of France. (See *France.*)

Philip the Bold. (See *Burgundians.*)

Philip the Good. (See *Burgundians.*)

Philip, King, sachem of Pokanoket, was the youngest son of Massasoit, and succeeded his brother Alexander in 1657 In 1662, he renewed the friendship which had subsisted with the English, and engaged not to dispose of any lands without their knowledge or appointment. In 1675, however, he commenced a desolating war, in order to arrest the progress of the whites, foreseeing, as he did, the loss of his territory, and the extinction of his tribe, in the increase of their settlements. After prosecuting hostilities with great en ergy and heroism, and inflicting considerable mischief, he was killed in a swamp, August 12, 1676, when endeavoring to escape from captain Church.

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* Agnes de Méran died of grief, at Poissy, in 1201, the year in which she was repudiated The pope legitimated her two children by Philip, as she was authorized to consider the king free when she married him.

Philippi; a town on the borders of Thrace and Macedonia, where two battles were fought (B. C. 42) between the republicans under Brutus and Cassius, and the friends of Antony and Octavius, in which the former were defeated. (See *Antonius*, and *Brutus*.) The Epistle of Paul to the Philippians was written to the church which that apostle founded at Philippi.

Philippics; the orations of Demosthenes against Philip king of Macedon. (See *Demosthenes*.) Cicero applied this name to his invectives against Antony, and it has hence come to signify an invective in general.

Philippines; a group of islands in the Pacific ocean, 1200 in number (lat. 4° 22′ N., lon. 116°—128° E.), extending about 450 leagues from north to south, and about 280 in its greatest breadth. The principal islands are Luçon (q. v.), Mindanao (q. v.), Palaouan, Mindoro, &c. The capital of the Spanish possessions is Manilla. (q. v.) The population of the group is estimated at about two and a half millions, of whom 7000 are Chinese, 4000 whites (Spaniards), 118,000 mestizos, and the rest natives. Of the latter there are two distinct races, the Papuas, or negroes, who live principally in the interior, and seem to have been the primitive inhabitants, and the Malays, who dwell nearer the coasts. (See *Malays*.) The Philippines were discovered, in 1521, by Magellan (q.v.), and received their present name in honor of Philip II king of Spain. The first settlements were made by the Spaniards in 1570. In 1823, the creoles and mestizos made an attempt to obtain a liberal government, but the insurrection was put down by the Spaniards, who employed in this service a force formed of the converted natives. The face of the country is mountainous, and there are numerous volcanoes in the different islands, whose eruptions have repeatedly caused great ravages. The climate is various, but the heat is never excessive. Violent rains, hurricanes and earthquakes often do much mischief. The soil is not less various, but, in general, is fertile. Rice, coffee, sugar, cocoas, tobacco, indigo, and a great variety of pulse, with many sorts of tropical fruits, ebony, sandal wood, dye woods, &c., are among the vegetable productions. Gold, silver and sulphur are among the minerals. The domestic animals of Europe thrive here. The trade of these islands is principally with the Chinese and English.—See Aragon's *Descripcion de la Isla de Luzon* (Manilla, 1820).

Philippones; a Russian sect, a branch of the Roskolnicians, so called from their founder, Philip Pustoswiat. The sect took its rise in the northern part of Russia towards the end of the seventeenth century, and neither acknowledges the pope, nor esteems consecration by the Russian church as valid. They differed from the other Roskolnicians chiefly in having no ordained clergy. Communion, confirmation, absolution, and marriage by ecclesiastics, were not, therefore, practised among them. (See *Greek Church*, and *Roskolnicians*.) In each of their societies is an elder (*starik*), chosen by themselves or by his predecessor, who can read Sclavonic, and is obliged, after his baptism, to abstain from strong drinks. He performs the different clerical offices. Absolution, they consider, must be received immediately from God. They scruple to take an oath, or to perform military service. Many Philippones fled, in the beginning of the eighteenth century, into Polish Lithuania, whence some of them passed into the Prussian territories.

Philips, Ambrose, a poet and dramatic writer, was a native of Leicestershire, and studied at Cambridge. On quitting the university he went to London, and became one of the literary wits who frequented Button's coffee-house, and a friend of Steele and Addison. The publication of his Pastorals involved him in a war with Pope, who ridiculed them in the Guardian; in consequence of which Philips threatened to inflict personal correction on the satirist. He was one of the writers of a periodical paper, called the Freethinker; and doctor Boulton, the conductor, obtaining preferment in Ireland, Philips was made registrar of the prerogative court at Dublin. He returned to England in 1748, and died the next year. He was the author of the Distrest Mother, a tragedy (1712), taken from Racine; the Briton (1722), and Humphey, Duke of Gloucester (1723); and he wrote the Life of Archbishop Williams. (See Johnson's *Lives of the Poets*.)

Philips, John, an English poet, born in Oxfordshire, 1676, was educated at Christchurch, Oxford, where he produced the Splendid Shilling, in which the sonorous cadence of the blank verse of Milton is adapted to familiar and ludicrous topics. He also wrote Blenheim, a poem, in celebration of the duke of Marlborough's victory; but his principal work is Cyder, a

Georgical work, in imitation of Virgil. He died in 1708. (See Johnson's *Lives of the Poets.*)

Philistines; apparently an Egyptian tribe, from whom Palestine, before called *Canaan*, received its name. They dwelt in the southern plains of that country, along the coasts of the Mediterranean. They were constantly at war with the Israelites, whom they reduced to subjection at one period, after the death of Joshua. In the German universities, the students give the name of *Philistines* to persons not members of the universities.

Philo; a learned Jewish author, who flourished in the first century of the Christian era, in the reign of the emperor Caligula. He was born some years before Christ, in Alexandria, where he was educated, and distinguished himself by his proficiency in eloquence, philosophy, and a knowledge of the sacred writings. With the writings of Plato, whose philosophy was at that time in the highest repute in Alexandria, he made himself intimately acquainted, and he adopted his doctrines so completely, that it was said of him, *Philo platonizes.* From the time of the Ptolemies the Jews had borrowed the use of allegories from their Egyptian neighbors, and thus imbibed Platonic and Pythagorean doctrines, which they treated as the hidden and symbolical sense of their own law. Thus, without having the appearance of being indebted to the heathen philosophers, they could make an arbitrary use of their systems. These systems were likewise mixed with various Oriental theories, in particular respecting the nature of God. Philo zealously studied this philosophy, then so popular in Alexandria; and either because he did not sufficiently understand the Jewish doctrines, or because he was not satisfied with the literal sense of the Mosaic law, he mingled Platonic dogmas with the holy scriptures, and ascribed them to Moses. Probably he followed the example of the Essenes and Therapeutæ, of whom he always spoke with great esteem, though he did not adopt their mode of life. He considered God and matter as coëternal principles; God as the primitive light, from whose rays all finite intelligences proceed. The understanding or wisdom of God (λογος), he called also the Son of God, his image, according to which God, by his creative power, produced the material world. He founds our knowledge of God upon intuition. On account of these doctrines, Bouterwek considers him as one of the first Alexandrian New Platonists. Philo perfected himself also in eloquence, and acquired a knowledge of public affairs, in which his fame was so great that he was sent by his countrymen, in the year 42, at the head of an embassy to Rome, to defend the Jews against the calumnious accusations of Apion and others. Caligula would not admit the embassy into his presence, and Philo was even in danger of losing his life. He composed, in consequence, a written justification of the Jews, evincing great learning and skill. The accounts are unworthy of belief, which state that Philo went afterwards to Rome under Claudius, that he became there the friend of the apostle Peter, and embraced the Christian faith, but renounced it again on account of some mortifications which he met with. Those writings of Philo, which have come down to us, are published in the last and most complete edition by Manzey (London, 1742, 2 vols., folio); after him, by Pfeiffer (Erlangen, 1785 and the following years, 5 vols.). They show that Philo was a man of great learning and industry, who was well acquainted with Greek philosophy and literature, and are very useful for those who would learn the state of philosophy at that time in Alexandria.

Philo of Biblos; a grammarian, who lived under Nero and the following emperors till the time of Adrian. He translated Sanchoniathon's Phœnician History into Greek, of which we still possess some fragments.

Philo of Byzantium, who lived in the second and third centuries, is mentioned as the author of a work on military engines, on the Seven Wonders of the World, &c. Besides these, there are an academic and a stoic philosopher of this name.

Philoctetes; a Grecian hero, son of Pœan and Demonassa, celebrated for his skill in archery. He led the warriors of Methone, Thaumacia, Melibœa, and Olizon in the expedition against Troy; but, having been bitten in his foot, while he was offering sacrifice in the island of Chrysa, by a serpent which guarded the temple, he became, by the mortification of his wound, so offensive that he was sent back to Lemnos, and there dragged out nine miserable years in lamentations. But, according to the prophecy of Helenus, Troy could not be taken without the arrows of Hercules, and these were in possession of Philoctetes, to whom the hero had given them, when he ascended his funeral pile. It therefore became necessary for the Grecians before Troy to recall Philoctetes. Ulysses, who had advised his exile, with Pyrrhus (according to some, Diomedes) undertook the embassy; the latter, by promising to heal his wound, prevailed upon him to return to Troy. He was cured by Machaon (or Æsculapius), and after many Trojans, among whom was Paris, had fallen by his arrows, the city was taken. The history of Philoctetes forms the subject of one of the tragedies of Sophocles.

PHILOLOGY.* This word, among the ancients, had a signification which included what we now call philosophy, literature, the sciences, and the theory of arts, though it excluded their practice. Thus poetry and rhetoric, considered as sciences, came within the description of *philology;* but philologists were not expected to be orators or poets. Cicero calls his philosophical works φιλολογωτερα, as opposed to his orations; the former being written in a didactic or argumentative, the latter in a more elegant or artificial style. (*Ad Att.*, xiii, 12.) We are informed by Suetonius (*De illustr. Gram.*, c. 10) that Eratosthenes of Cyrene was the first among the Greeks who assumed the name of φιλόλογος. He was a man of unbounded erudition, a physician, philosopher, geographer, grammarian, historian and poet, though we are told that he excelled in none of these branches. (*Moreri.*) Before his time, a philologer or philologist—for both words are used in the English language—was called γραμματικὸς, which did not mean a *grammarian* in the present acceptation of the word, but a *man of letters;* in which sense literary men were first called at Rome *literati*, and afterwards, when Greek terminology became fashionable, *grammatici* and *philologi*. Philology, then, included in ancient times, with few exceptions, every thing that could be learned (*omne scibile*). In those days, however, science was circumscribed within much narrower bounds than it is at present. The numerous branches which compose what is now called *natural science*, were very imperfectly known. The same may be said of geography, astronomy and natural philosophy. All that was known of those sciences, with grammar, rhetoric, scholastic logic, metaphysics and elementary mathematics, formed an aggregate which obtained the name of *philology*, until long after the destruction of the Roman empire; and that is the sense in which this word is understood in many, if not most of the colleges and universities of Europe, always with reference to ancient, and not to modern learning; hence *criticism*, as applied to the Greek and Roman writers, and the knowledge of ancient coins and medals, and other recondite antiquities, are considered as important branches of philology, and those which chiefly entitle their followers to the name of *philologists*. This opinion was general as late as the seventeenth century. At that time the Bentleys, the Scaligers, the Saumaises, were the philologists *par excellence*. The dictionary of the French academy defines philology *érudition qui embrasse diverses parties des belles-lettres, et principalement la critique*. A century afterwards Johnson defined it *criticism, grammatical learning*. But of late, the word *philology* has received a more definite and more appropriate meaning; and it seems now, by a tacit, but almost universal consent, to be chiefly, if not exclusively, appropriated to that science which embraces human language in its widest extent, analyzes and compares its component parts and its various structures in thousands of idioms and dialects, that are and have been spoken on the face of the habitable globe, and from the whole seeks to draw inferences that may lead to a clearer and more extensive knowledge than we have hitherto possessed of the history of our species, and particularly of the migrations of different nations, their connexion and intercourse with each other; for language, though perishable, like all other earthly things, is still the most lasting monument of events long since past, and the surest means of transmitting facts through successive generations. When the sounds of a language have ceased to reverberate, and no longer convey ideas through the human ear, that language still lives in written characters, which speak to the mind through the eyes, and even when the sense or meaning of those characters is lost or forgotten, genius, aided by philology, will, after many ages, revive, at least some fragments, and Champollions will arise, whose labors will perhaps succeed in recovering an ancient language, long considered as not only dead, but profoundly buried in the night of time. A science like this, so wide in its extent, and yet so homogeneous in all its parts, requires an appropriate name, a name familiar to men of science, and such as the learned world will easily be led to adopt. Various denominations have been attempted to be given to it, such as *glossography*, *glossology*, and others of the like kind; but those names have been uniformly rejected. The Germans, with more success, have called it, and still call it *linguistik;* but no other European nation that we know of has followed their example, while the name *philology*, for some years past, appears to have been generally adopted, even in Germany. It is believed that it was first used in this sense in the United States. Our Webster, in his excellent dictionary, is the first who has defined the word in this, its most appropriate meaning. "Philology," he says, "is that branch of literature which comprehends a knowledge of the etymology or origin and combination of words, and whatever relates to the history and present state of languages. It sometimes includes rhetoric, poetry, history and antiquities." Indeed, the word *philology* has been gradually falling off from its original acceptation, as no longer requisite for the heterogeneous mass of sciences to which it was formerly applied. Literature, criticism, archæology, philosophy, history, grammar, rhetoric, logic, metaphysics, and all else which once came under this sweeping denomination, have all received specific and appropriate names, and each of them is now too vast and too extensive, and many of them too distant from each other, to allow of their being classed under one general appellation. The word *philology*, therefore, had become as it were in *abeyance*, and the science of human language, comprehending all its various divisions and subdivisions, has very properly taken hold of it, and appropriated it to itself with universal consent. Under this impression, we have headed this article *Philology*, and under it, we shall endeavor to give a general idea of the science which it denominates. The science of languages, in its present extent, is of very late date. The ancients (we mean the Greeks and Romans) had, indeed, analyzed, with great judgment, their respective idioms, and reduced them to grammatical systems truly worthy of admiration; but beyond that they did not go. They called every language but their own *barbarous*, and did not think any other worthy of attention. We have learned nothing from them of the Punic, nor of the ancient Persian, though they were so long at war with the nations that spoke those idioms. Their excessive pride has suffered those idioms to perish, though there is reason to believe that they were both rich in literature of their own. Even of the language of Egypt, where they so long governed, the Romans have told us nothing, and the Greeks very little. How interesting would be, at this day, a Coptic grammar, written by a Roman or Greek grammarian, with some explanation, at least, of their hieroglyphic characters, more satisfactory than what we have received from Herodotus and Clement of Alexandria! An incomplete translation of the works of Horus Apollo is all that we have, and it has rather increased than dispelled our ignorance of the system of that ancient mode of writing. It led us into a false track, in which we continued until Champollion showed us another and a better way. This prejudice continued until a very late period. Even in the days of Dante, Petrarch and Macchiavelli, and later still, in those of Ariosto and Tasso, the beautiful Italian language was styled, in opposition to the Latin, *la lingua volgare;* that is to say, the *lingua rustica*, the *patois*, the jargon, the dialect of the *vulgar*. The same contempt followed the other modern idioms. It was taught in the colleges that there were but four *mother tongues*, the Latin, the Greek, the Hebrew and the Syriac (the two last were added by the theologians on account of their supposed sacred origin). All other languages were mere dialects. The German, of course, was included, though derived from neither of the pretended mother tongues. Such was the ignorance that prevailed on the subject of languages. In the seventeenth century, the cloud began to be dispelled, but gradually indeed. A great step was made by Messieurs de Port Royal, who, in 1660, published their *Grammaire générale et raisonnée*, the work of Arnaud and Lancelot, two of their members. Here the first attempt was made to generalize the grammatical science, and to deduce from it principles and rules applicable to all languages. That work was much and justly admired when it appeared, and has been the model of almost all that have been published since on the same subject. But the foundation was wanting for such a work at that time. The knowledge of languages was yet confined to a few. The Greek, the Latin, the Hebrew, with the French and Italian, and, perhaps, the Spanish, were the most that a philologist aspired to know. One cannot refrain from smiling, when he sees Messieurs de Port Royal, after stating a principle or rule common to the languages that they knew, gravely asserting that that principle governs in every language (*dans toutes les langues*). This assertion is frequently met with in the General Grammar, and may at this day be as often easily disproved. The variety of forms existing in languages was not even suspected. The missionaries had not yet made known the extraordinary structure of the Chinese on the one hand, and of the American idioms on the other; what little was known of them might produce a momentary wonder, but did not excite the curiosity of grammarians and philologists. It was not until about the middle of the eighteenth century that a broad and comprehensive view of the various languages of men began to be taken by the learned. M. Maupertuis, who did not deserve all the ridicule which the jealousy of Voltaire endeavored to throw upon him, published an essay on the Origin of Language, in which he recommended studying the idioms even of savage and barbarous nations, "because," said he, "there may be found among them some that are formed on *new plans of ideas*." So little was the world prepared for this view of the subject, that M. Turgot, a man, certainly, of great sense and judgment, who was afterwards minister to the unfortunate Louis XVI, in a similar essay that he published, thought proper to sneer at this expression, saying that he could not understand what was meant by *plans of ideas*. The science was then in its infancy. Languages were considered only in respect to the etymology of their words and their affinity with each other. For more than three centuries, attempts had been made from time to time to collect materials for the comparison of languages. These consisted of vocabularies, and of the Lord's prayer printed in various idioms, but all on a very limited scale. Adelung has given us a list of those works at the end of the first volume of the *Mithridates*, beginning with Johann Schildberger, who, about the year 1427, at the end of a book of travels, published the *Pater Noster* in the Armenian and Tartar languages. In all these the science was considered as confined to the knowledge and comparison of words; the importance of the grammatical forms and internal structure of the various idioms might have struck some privileged minds, as it did that of M. Maupertuis, but it was far from being understood by the grammarians and philologists of that day. The science did not begin to extend its bounds until about the period of our revolution. Hervas, in 1784, published at Cesena, in the Roman states, his catalogue of known languages (*Catalogo delle Lingue conosciute, e Notizia delle loro Affinità e Diversità*), and afterwards his polyglot vocabulary of 150 languages, and a collection of the Lord's prayer in more than 300. But, while he was engaged in the composition of these works, an illustrious sovereign, at the other end of the eastern hemisphere, Catharine the Second, empress of Russia, was meditating another, on a plan much more extensive, which was no less than a comparative vocabulary of all the languages in the world. This noble idea she not only conceived, but actually carried into execution, with the aid of professor Pallas, for the languages of Asia and Europe, and of Mr. Theodore Jankiewitsch, for those of Africa and America. Then, and not till then, philology began to be a science. Still etymology alone was the only object which that great work had in view. The various structure of languages had not yet attracted the attention of the learned. In the celebrated French *Encyclopédie*, under the word *Langue*, languages, in this respect, are divided only into two classes, those which admit of inversions, like the Latin and Greek, and in some measure the German, and those which do not, like the French and some other modern European idioms. The monosyllabic Chinese, with its absence of forms, the polysyllabic and polysynthetic structure of the American languages, were not at all taken into consideration in the classification of the various modes of human speech; indeed, that classification had not even been attempted, either in respect to etymological affinities, or to the grammatical construction and arrangement of words; or, if some efforts were made, they were so limited in their range, and on the whole so unsatisfactory, that they are undeserving of any attention at this day. To two illustrious Germans, John Christopher Adelung, and his able successor, John Severin Vater, is due the honor of having first presented the world with a scientific classification of all the known languages, and a correct description of each idiom, particularly with regard to its grammatical structure. This was done in their admirable work, the *Mithridates*, a work so well known to the learned, that it is unnecessary to mention more than its title. We may venture to call this book, without fear of being contradicted, the fountain of all philological knowledge; and we do not hesitate to say that it deserves to be placed among the greatest and happiest efforts of the human mind. A translation of it into the English or French language has been long desired, and it is astonishing that no one has been yet found to attempt it. M. Balbi has lately published, at Paris, a valuable work, entitled *Atlas Ethnographique du Globe*, in which he gives a succinct view of the different languages, with the addition of the knowledge acquired since the publication of the *Mithridates*. But the form which he has adopted—that of a large folio atlas, with synoptic tables—has prevented him from executing as perfect a work as he might otherwise have done with the knowledge and talent which he possesses; and we are compelled to say that a translation of the *Mithridates* is still a desideratum in the philological science. The fashionable mode, imitated from Lesage, of publishing every thing in the shape of an atlas, appears to us the most inconvenient that could have been chosen for a work of science. Besides the unwieldy size of these gigantic books, they have the incurable defect of being like the bed of Procrustes, where every thing must be condensed or dilated, so as to fill the given space allotted to each part of the subject. It is one of the childish whims of the present day, which, like all other similar fancies, will last only for a time, and be forgotten. Nevertheless, we do not mean to depreciate the work of M. Balbi. Next to the *Mithridates*, we think it the most useful book of its kind that has appeared within this century. It will afford considerable aid to those who apply themselves to the study of that science. We only regret that he did not follow the method of his predecessors, which we think infinitely better adapted to the subject. The progress of philology since the publication of the empress Catharine's vocabulary and of the *Mithridates*, and particularly since the general pacification of 1814, is hardly to be conceived. We wish we could mention here all the valuable and important works that have appeared in the thirty years that have elapsed of the present century, in Russia, Germany, France, and elsewhere in Europe and in the U. States, either on the general subject of languages, or on particular idioms till then little known, and some of which were even entirely unknown to the learned. The shortest notices that we could take of all those publications would fill more than the remainder of the space allotted to this article. It would give us infinite pleasure to expatiate on the labors of Adelung, Klaproth, the two Humboldts, De Sacy, Remusat, Jomard, St. Martin, Pougens, Burnouf, Akerblad, Young, Colebrooke, Champollion, Heeren, Eichhorn, Stewart, Murray, Barton, Hodgson, Pickering, Webster, and so many others, whose names crowd so fast upon our pen, that we find ourselves obliged to stop, and proceed to another part of our subject. From the aggregate of the labors of these men and their illustrious predecessors, has resulted the science which we call *philology* —a science as vast in its extent as interesting in its details. Like all other sciences, it requires to be subjected to some methodical order, in order that a comprehensive view may be taken of its whole extent, and a regular system pursued in the study of its component parts. We do not find that any attempt has been made in Europe to give to philology a definite form, by delineating its constituent members. We are, therefore, obliged to adopt, as the only one that we are acquainted with, the division which Mr. Duponceau has made of it, into three principal parts, which he calls *phonology*, *etymology*, and *ideology*, and which he defines as follows:

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* This article comes from the same learned source with that on *Language*, and forms a whole with it. The interest of the subject, and the originality of the author's views, are the reason of the space allowed it.—ED

Phonology is the knowledge of the sounds produced by the human voice. It teaches us to distinguish those sounds, with their various tones, accents and inflections; to analyze, class and compare them with each other, and represent them as much as possible by visible signs. *Etymology* is the knowledge of those constituent parts of speech that we call *words*. By means of it we are enabled to trace the affinities of the different idioms of the earth, and the filiation of the numerous races and families of men who inhabit it; and, lastly, *ideology* is the comparative study of the grammatical forms and idiomatic structure of languages, by which we are taught to distinguish the different shapes in which ideas combine themselves, in order to fix perceptions in our minds, and transmit them to those of others. (See the Preface to the translation of Zeisberger's Grammar of the Lenni-Lenape, or Delaware Language, in the Transactions of the American Philosophical Society, vol. iii, new series, p. 75.) Having adopted this division of our general subject, we shall, as briefly as possible, consider separately each of the three parts of which it is composed.

I. *Phonology*. This we have defined to be "the knowledge of the sounds produced by the human voice." According to this definition, it seems to include *music*, and it does, in fact, comprehend it; for music is a language, and the only one that may be called universal. It is true, that its sphere is limited; still it conveys the impression of passions and feelings from mind to mind by means of audible sounds, and, coupled with the language of signs, which we call *pantomime*, there is hardly any thing that it cannot communicate. When we speak of the language of signs, we exclude those that are merely conventional, such as are taught to the deaf and dumb, or which they agree upon among themselves: we mean those alone proceeding from natural impulse, and which every one will understand without previous teaching. Music and pantomime, therefore, considered as means of communication between men, by awakening ideas, perceptions and feelings by means of audible sounds and visible signs, are parts of the general science of philology; and music, which speaks to the ear, comes properly within that division of it which we call *phonology*. The sounds of which music is composed have an immense advantage over all other sounds produced by the human voice. They are susceptible of being divided into parts, as minute and as nearly accurate as the ear can discriminate; so that their almost infinite combinations may, by a few conventional signs, be presented through the eye to the mental ear, in a uniform manner from one end of the world to the other. And this is not all: the duration of each sound, and of the intervals of silence, are as accurately marked by those signs as the sounds themselves; so that the most complicated piece of music is sung or executed at St. Petersburg in the same manner as it is at Canton or at Philadelphia: as far as it extends, therefore, music may be called a *universal language*.—It has been frequently asked whether the *oratorical* sounds or tones could not be described by signs, in the same manner as those of music. Various attempts have been made to that effect, and doctor James Rush, of Philadelphia, has written a very learned and ingenious treatise on the subject. But all such attempts have failed, and, from the nature of the thing, must always fail. We shall endeavor to explain the reason of this opinion. The musical sounds or tones proceeding from the grave to the acute, and *vice versa*, form, as it were, an ascending and descending line, easily divisible into parts, which the ear can appreciate. This effect is produced by certain organs, which operate by pressure, letting out of the mouth of the singer a greater or lesser quantity of air, and striking the external air variously, according to the manner in which they act, which it would be difficult and it is not necessary here to describe. Those organs, in speaking, are not called in the same manner into action; the tones of the speaker differ more from each other in strength than in acuteness or gravity—in short, speech is monotonous, when not modified by strong passion or feeling; and, in that case, it modulates within a very narrow compass, which is not susceptible of division, like the musical scale; and, indeed, the word *modulation* would be here improperly applied, for the rising and falling of the orator's voice, in speaking, is no more than what, in music, is called *expression*, and it is not more susceptible of notation in the one than in the other. The musician has his F. and FF., and P. and PP., for *forte*, *fortissimo*, and *piano*, *pianissimo*, and his marks > and <, to swell or diminish gradually the sound of a particular note: beyond that, he has no guide but his feeling and taste, and the instruction of a good master, aided by exercise and practice. This musicians call *method*. A man may read and write music in perfection, but, without method, he will not be a good singer; so one may read and write his language with perfect correctness; without method, he will not be an orator; and that method cannot be learned from notes or written signs, but must be acquired by instruction, exercise and practice, coupled with that natural disposition, without which there can be neither a musician nor an orator. But if the sounds which are the elements of speech are not divisible in the same manner as those from which music proceeds, they are, nevertheless, susceptible of discrimination from each other, and may be divided into classes, though not into intervals. A much greater number of organs concurs in their production than in that of the musical tones. The head, the breast, the lungs, the throat, the lips, the tongue, the palate, the teeth, and even the nose—all lend their aid to the formation of the wonderful mechanism of language. M. Court de Gébelin has described anatomically the manner in which the different sounds are produced, in his *Histoire naturelle de la Parole*, to which we refer our readers. In the analysis of these sounds, and in the means of representing them by visible signs, consists the principal part of the branch of science which we call *phonology*. This seems easy at first view, particularly when we consider the small number of elementary signs contained in our alphabets, which are, in general, sufficient for practical use in the languages to which they are applied, and to which they belong; but, if we extend our prospect, and attempt to describe all the elementary sounds which the human organs may, and, in fact, do, utter, for the purpose of oral communication in the different countries of the world, we find ourselves at once surrounded with difficulties. There is no common standard for the pronunciation of any given vowel or consonant. Their mode of utterance varies in different countries, so that it can hardly be recognised from one to the other. Take, for instance, the vowel *a*, not its acute sound in the English word *grace*, but what is commonly called the French and Italian *a*. The first thing that will strike an experienced phonologist is, that this sound does not at all exist in the English language. It is not the *a* in *call* that is too broad; not the *a* in *father* that is too acute, and it rather approximates to the French broad *e* in *tête*, as articulated in solemn discourse, and on the stage. If this should be still doubted, we will ask an Englishman to pronounce the French word *barbier*. He will at once give to the *a* the long and acute sound of *a* in the English word *barber*. It has been observed that the pronunciation of this letter *a* is the *Shibboleth* by which an Englishman or a North American is soonest detected in speaking the French language, and teachers will acknowledge that they find it most difficult to make their scholars pronounce it properly. As to consonants, similar difficulties exist. The English *th* (the delta and theta of the modern Greeks) is seldom correctly pronounced by those who have not these sounds in their native language. The English *sh* and the French *ch* have by no means the same sound. There are nations who confound the *b* and the *v*, the *b* and the *p*, the *d* and the *t*, and cannot discriminate the one from the other. The Mohawks pronounce the *k* so nearly like the sound of *g* hard, that it requires a very nice ear to distinguish which of the two it is. The reverend Mr. Williams, a native Mohawk of mixed blood, after much hesitation, at last determined in favor of *k*. Before that time, both letters had been indifferently used in their alphabet to represent it. It has long been a subject of controversy whether the ancient Greeks pronounced the *β* like our *b* or *v*. It seems most probable that it represented a sound partaking of both. The Spaniards use these two letters indifferently. The fact is, that the sounds uttered by the human voice, particularly the vowel sounds, slide into each other by imperceptible shades, which may be divided *ad infinitum*, and the number of their divisions is only limited by the power of the ear to discriminate them. Thus from *a* to *o* there are a great number of intermediate sounds. The monosyllable *ja*, pronounced by an elegant woman of Berlin or Dresden, has the small short sound of the French *a* in *păpă:* a Suabian peasant, on the contrary, will say *jŏ*, with the prolonged sound of our broadest *o*. It is probably from this analogy that the double *aa* in the Danish language has the sound of *o;* and the same sound is expressed in Swedish by å. Proceeding from the grave to the acute, the sound *a* falls into the French *é* open, then to the acute *a*, as in *grace*, *face*, and, becoming still more acute, it is heard as the English *ee*, or the French and Italian *i*. We have shown how the consonants are often confounded with each other. All this proceeds from the various motion, the greater or lesser aperture or pressure of the organs employed in speech, and, for want of a common standard, or, if we may so express ourselves, *diapason*, it is impossible to convey an idea of those differences in sounds, and their nice shades and gradations, otherwise than by a direct appeal to the ear. Nothing more can be obtained by a reference to sounds that are known than an imperfect approximation; whence it happens that the pronunciation of a foreign language, though ever so nearly connected with our own, can never be learned from books, and when, at a certain age, the organs of speech have lost that flexibility which they possess only in early youth, even the practical aid of a master is often found insufficient. When we pass from sounds that are known, that is, those to which our ears have become more or less accustomed, from their existing in languages which we have at least heard spoken, or from their bearing a great analogy to those of our idiom, and proceed to those which our ears have never heard, and which bear no analogy to those that we know, the difficulty of conveying those sounds to the mental ear by means of written signs, becomes insuperable. Such are the whistled *w* of the Delawares, the *c* of the Peruvians and Othomis, which the Hispano-American grammarians call *castañuelas*, which we cannot describe otherwise than by saying that it is something like our *k*, pronounced from the throat only, and imitating the noise of a monkey cracking nuts; the *yerwe* of the Russians (bı), something like our sound *we*, pronounced very short, and struck by the preceding consonant in a manner which cannot be described; the Polish crossed *l*, the guttural sound, said to be peculiar to the Hottentots. These and many others that could be mentioned, we have no means of making known, except through the medium of the physical ear. To those who never heard them, no written signs can convey a correct idea of their utterance. The degrees of the musical scale are conveyed from one country to another by means of instruments, violins, flutes, &c., from which an accurate idea of them may be every where obtained. If it were possible to invent a mechanism that should, in the same manner, convey to the ear the various sounds produced by the organs of speech, it would be an immense advantage to phonology. We believe that it would be possible to effect it, if phonology possessed the same attraction as music; but the Vaucansons of the age will hardly undertake it for this dry science. It appears impossible to us, at least at present, to make a complete and accurate general alphabet of all the sounds existing in the different languages of the earth: all we can expect to arrive at is some kind of approximation, by means of which philologists may more easily communicate and convey to each other the idea of each particular sound as nearly as possible; for it must be acknowledged that, particularly as relates to barbarous (as they are called) and newly discovered languages, the mode now adopted of expressing or representing the sounds by the alphabetical signs of the nation to which the writer belongs, is very inconvenient, and leads to strange mistakes; for instance, the name of prince *Lee-Boo* of the Pelew islands will appear to a Frenchman to be composed of two dissyllables, because, according to his own orthography, it should be written *Li-Bou;* and, then, an Italian will commit the same mistake, and read *Li-Bo-u.* Our learned philologist Mr. Pickering has published an Essay on a uniform Orthography for the Indian Languages of North America, which we consider as the best work of the kind that has yet appeared. The alphabet that he proposes has been almost universally adopted by American missionaries, not only on this continent, but in the South sea islands. It consists of twenty-seven letters, all borrowed from our Roman alphabet. These letters consist of five pure and five nasal vowels, the latter distinguished from the former by a cedilla underneath, as in the Polish orthography, sixteen consonants, and the aspirate *h.* The guttural sound of the Greek *x* is represented by *kh,* the author having been afraid of the Greek character being mistaken for our double letter *x,* as his principal objects were simplicity in theory and facility in practice, in both of which he has, in our opinion, succeeded as far as it is possible to do. (See the *Memoirs of the American Academy of Arts and Sciences,* vol. iv, p. 319.) While we think that such a general alphabet may be of use for unwritten languages, we are of opinion that it is entirely useless for those that have an alphabet of their own, and properly suited to their idiom. Sir William Jones, and, after him, M. de Volney, have expressed the wish that our Roman alphabet might be employed in writing the Arabic, Persian, and other Oriental languages; and the latter has left a considerable legacy to be employed in premiums to those who should discover the best mode of attaining that end. We cannot perceive what benefits will arise from it. He who knows those languages will, of course, be able to read their writing; and he must know how to read it, otherwise their books will be to him a dead letter; and to those who do not, our Roman letters will convey no better idea of the sounds of those idioms than the characters which the nations which speak them have adopted for themselves—nay, we rather think that they will be apt to mislead them. It has become fashionable in Europe to represent the unknown sounds in Oriental proper names by letters different from those formerly used, as if they could convey to the mind the idea of a sound which the ear has never heard. Thus some will write the *Qoran* or the *Khorân, Kairo* instead of *Cairo, sultaun* instead of *sultan;* and various similar attempts are made to assimilate our pronunciation of proper names to that of the country to which they belong. These only serve to confuse the reader, and do not contribute in the least to the advancement of science. It is impossible to say into how many shapes the name of poor *Gengis-Khan* has been tortured, in order to come nearer to the true pronunciation of his name. We have gained nothing by these vain attempts, except that in these fantastic dresses we no longer know our old acquaintance. We have taken notice, in our sixth volume, under the head *Indian Languages,* of the curious alphabet invented by the Indian philosopher Guest to represent the sounds of the Cherokee idiom, which may now be considered as a *written tongue.* We refer our readers to what is said on that subject in page 599 of that volume. We invite them to meditate upon it; it is pregnant with reflections which, if followed through all the chain of ideas to which they give rise, will greatly contribute to extend and to improve the phonological science, which has not yet made any considerable progress, and may still be considered as in its infancy.—II. *Etymology.* This branch of philology considers words only in relation to their origin, and to their connexion with or relation to each other. We have little to add to what has already been said on this subject in our fourth volume, in the article *Etymology*, to which we refer our reader. We would refer him also to the excellent work of president de Brosses, entitled *Traité de la Formation méchanique des Langues, et des Principes physiques de l'Etymologie* (Paris, an IX, 2 vols., 12mo.), in which this topic is fully and most learnedly discussed. The object of etymology is, by means of the similarity, affinity and probable derivation of words in different languages, to trace, as far as possible, the successive migrations of men from one country to another, and thus to extend and improve our knowledge of the history of the human race. Many learned men have thought that the science of etymology would lead us to the discovery of the primitive language which was spoken by man at the creation. We have given our opinion on this subject under the head *Language*, in the seventh volume of this work, and we will not repeat what we have said there. We have shown, also, that the verbal affinities which late investigations have discovered between the languages of Europe and those of Western Asia vanish from the moment when we have crossed the river Ganges, and are not to be found in the idioms of the American Indians. All attempts to show the contrary have hitherto failed. It is no reason, however, for further inquiry to be abandoned. There is no knowing what facts investigation may bring to light. The affinities which have been shown to exist between the Sanscrit, for instance, and the Teutonic and Slavonic languages, are well calculated to excite surprise, and to put us on our guard against too strongly asserting the impossibility of further discoveries. It must be owned that the etymological science is very uncertain, and is full of false lights, ever ready to deceive and mislead us. What greater resemblance can there be between two words than between the Indian name of our river *Potomac* and the Greek word ποταμὸς (a river)? And yet it is very certain that the former is not derived from the latter, for its Indian etymology is well known. On the other hand, who would believe, if it were not an undoubted fact, that our word *tragedy* is derived from a Greek word signifying a *goat*? and who would now suppose that the English word *wig* is derived from the Latin *pilus* (a hair)? This, however, may be easily shown:—Latin, *pilus*; Spanish, *pelo*, thence *peluca*; French, *perruque*; Dutch, *peruik*; English, *perwick*, *perwig*, *periwig*, and, by contraction, *wig*. The Russian and Latin languages appear to be entirely different from each other, yet many verbal affinities may be found between them. We will mention here a few, extracted from an excellent dissertation by Mr. Frederic Adelung, of St. Petersburg, on the merits of the empress Catharine in promoting philological knowledge:

Russian.	English.	Latin.
Pastir,	Shepherd,	*Pastor.*
Charosch,	Dear,	*Charus.*
Paschet,	He feeds,	*Pascit.*
Ovets,	Sheep,	*Ovis.*
Vidit,	He sees,	*Vidit.*
Agnets,	A lamb,	*Agnus.*
Karmana,	A purse,	*Crumena.*
Krugom,	Around,	*Circum* (*Kirkum*);
Spinu,	A thorn,	*Spina.*
Beret,	He carries,	*Fert.*
Igum,	Yoke,	*Jugum.*
Ssekeroiu,	An axe,	*Securis.*
Stroit,	He builds,	*Struit.*
Dom,	A house,	*Domus.*
Obitaiet,	He dwells,	*Habitat.*
Pakoi,	Peace,	*Pax.*
Ssedit,	He sits,	*Sedet.*

To these may be added *levi*, *lævus*; *brat*, *frater*; *steklo*, *speculum*; and many others. The same writer has shown similar affinities between the Russian and ancient German. He has put together a few sentences in the two languages containing in the whole fifty words, literally translated from the one language into the other, and striking out all the vowels, and leaving only the consonants as the bones or skeleton of the words, he has shown them to be exactly the same, without the least difference. (See *Catherinens der Grossen Verdienste um die Vergleichende Sprachenkunde*, p. 19.) The numerous affinities between the Sanscrit and the languages of Western Europe are still more remarkable. The following will serve as an example out of a very great number collected by various German philologists:

Ada, I eat; Lat. *edo*; Russ. *yeda*.
Aghni, fire; Lat. *ignis*; Russ. *ogn*.
Aschuga, dry; Ital. *asciugare*.
Bratha, brother; Russ. *brat*.

Bhrouvo, bhrouvan, the eye-brows; Russ. *brovi.*
Cabala, head; Gr. κεφαλή.
Da, give (imper.); Lat. *da.*
Dwi, two; Lat. *duo;* Gr. δύω; Fr. *deux.*
Dwar, opening; Eng. *door;* Russ. *dver.*
Gada, going; Eng. *to gad* (about.)
Ghena, woman; Gr. γυνή; Russ. *zhena.*
Herda, heart.
Hima, cold; Lat. *hyems* (winter).
Ita, yes; Lat. *ita* (thus).
Yuga, yoke; Lat. *jugum;* Fr. *joug.*
Yuva, young; Lat. *juvenis.*
Krschra, a scream; Eng. *to screech.*
Kuka, a cock; Fr. *coq.*
Mrita, mortal; Lat. *mors, mortis;* Fr. *mort.*
Marcca, frontier; Eng. *mark* (land mark); old Germ. *mark* (frontier); Ital. *margine;* Eng. *margin.*
Misra, to mix; Lat. *misceo.*
Nasa, the nose.
Nicht, nothing; Germ. *nichts.*
Padi, road, way; Eng. *path.*
Shoastri, sister; Germ. *schwester.*
Sonnu, son.
Sourgo, height; Lat. *surgo.*
Tri, three; Lat. *tres;* Ital. *tre.*
Vaihon, wind; Dutch, *Waaijen* (to blow, bluster).
Wartana, warti, guardian, door-keeper; Germ. *warten.*

Amidst all these affinities existing among so many languages, how is the mother tongue to be discovered? The task is undoubtedly very difficult, but, to a certain degree, perhaps, not impossible. We are inclined to think that the filiation of languages may be pursued to a great extent. Before that is done, however, it will be necessary to establish certain rules, to direct our researches in the thorny paths of etymology. By way of example, we shall suggest one rule or canon, which, we are of opinion, will go a great way towards serving us as a clew in this complicated labyrinth. If, in a given language, a radical or primitive word should be found, accompanied with what may be called its *family*, that is to say, its various compounds and derivatives, and if, in another, we should find only the root, or but a few of the derivatives or compounds, we may safely say, that, as far as that goes, the latter is derived from the former. Thus we find in the French the radical word *roi*, with its derivatives *reine* (formerly *royne*), *royal*, *royauté*, &c.; while, in English, we find the derivatives *royal*, *royalty*, *royally*, under the primitive *king*. We may then be well assured that the English language has borrowed these derivatives from the French, and for the origin of the primitive *king*, we must look somewhere else, until we find the whole family of that word existing together in one idiom. Another example may be adduced. In the Basque language, undoubtedly one of the most ancient that exists, the primitive word *bi* signifies the numeral *two*. All the family of that word is derived from it or compounded with it; *bigarrena*, second; *birretan*, *biarretan*, twice; *bitan ambat*, double; *biderbiro*, doubly; *biderbitu*. to double; *biña*, *biñaca*, two and two; *amabi*, twelve (ten and two); *bicoa*, of two; *bitan*, *bian*, in two (speaking of things); *bigan*, in two (speaking of persons), &c. In the Latin tongue, we do not find the simple or primitive word *bi;* for *two* is expressed by *duo*, a word derived from the Greek, which has compounds and derivatives of its own; but we find a part of its family, *bis*, twice; *binus*, *biceps*, *bicolor*, *bidens*, &c. What are we to infer from this fact, which deserves, at least, to be remarked? We think it not improbable, that the Basque language, many centuries ago, was spoken in Italy, or, at least, some dialect derived from it, in which was found the primitive word *bi*, with its family; that, in consequence of successive invasions and conquests, that language was pushed farther westward, and other idioms took its place, and, either mediately or immediately, the Greek word *duo* was introduced, while *bis* and some of its compounds remained. Some other language introduced the verb *sequor*, whence *secundus* was derived, and expelled the Basque word *bigarrena;* but the word *bis* could not be driven off; there remained with it many words derived or compounded from *bi*, such as *binus*, *biceps*, &c., which gradually adapted themselves to the analogies of the new language. It will be said, perhaps, that the Latin word *bis* is the Eolic form of the Greek δις, because it is known that in that dialect, the δ was often changed into β; but why should not the Eolic βις be also derived from the Basque? The baron W. von Humboldt has discovered many affinities between that language and the Greek. (See the *Mithridates*, vol. iv, p. 282.) The word *other* (alter), which, in several languages, as, for instance, in German, is made use of for *second* (*der andere*), is, in Basque, *bestea*, *bercea;* *formerly* (in Fr. *autrefois*) *berris;* *other thing*, *besteric*. In all these words we find the letter *b*, and the analogy of all these words with *bi* is not to be doubted. We do not think we have gone too far, in asserting the probability that the Basque language, in various dialects, was once spoken in a great part of Europe, and, amongst other places, in Italy. It is impossible not to come to this conclusion, when we consider how much that idiom differs from all others, not only in the derivation of its words, but in its grammatical forms, which have no parallel any where in the old world, and although they resemble, in some degree, those of the American Indian languages, yet differ sufficiently from them to show that there is no real affinity between them. (See *Historical and Literary Transactions of the American Philosophical Society*, vol. i, p. 39.) Now, we know that mankind are every where imitators, and that, in the gradual formation of their languages, they borrow a great deal from each other; we cannot, therefore, form an idea of a language so widely different from all others, and particularly from those by which it is surrounded, without coupling with this fact the idea of the most remote antiquity, and of times when the people who now speak that language extended themselves in various tribes, through a very large extent of country. The learned baron W. von Humboldt has shown, in an elaborate treatise, that many proper names of places in what is now Italy, are evidently of Basque origin; and we have no doubt, that further investigation will show numerous derivations, like those from the word *bi*, in the ancient and modern languages of the Italian peninsula, which may be traced to the idiom now spoken in Biscay.—See the interesting dissertation entitled *Prüfung der Untersuchungen über die Urbewohner Hispaniens, vermittelst der Vaskischen Sprache*, by Wilhelm von Humboldt (Berlin, 1821). We cannot take leave of this branch of our subject without mentioning a curious proof of the antiquity of the Basque language, which is given us by the same writer, baron W. von Humboldt, in his addenda to the second volume of the *Mithridates*, published in the fourth part of that work, which appeared in 1817. It is an original song, or poem, in that idiom, recording the five years' war in which the Biscayans were engaged against the Romans, who invaded their country under Octavianus Augustus, at the end of which, after excessive sufferings, they were not treated as a conquered nation, but were received into the alliance of the Roman people. The baron has given us a part of that poem in the original, with a German translation, which we think our readers will not dislike to see in an English dress:

1. Lelo is dead, Lelo is dead: Zara was the murderer of Lelo.
2. The strangers from Rome declared war against us; and Biscay set up her song of victory.
3. On one side was Octavianus; on the other, Lecobidi, the Biscayan.
4. Master of the sea and of the strong-holds, he surrounded and besieged us.
5. The dry plains were his, and so were the shady forests of the mountains.
6. When we were posted in favorable spots, every one felt himself strong and courageous.
7. We are all brothers in arms, and have little fear: but, oh! bread-basket, thou art sick.
8. They cased themselves in heavy armor; but the unarmed body is light and quick in its motions.
9. During five long years we were besieged; we had no rest by day or by night.
10. If they murdered one of our men, they lost fifty of theirs.
11. But though they were so numerous, and we only a small band, we made, in the end, with them a treaty of alliance.

It may be asked, perhaps, Who was this Lelo, whose death is bewailed in the first stanza of this poem, and whose name is not afterwards mentioned? Tradition relates, that, at a very distant period, a Biscayan warrior, named *Lelo*, was obliged to march against the enemy. During his absence, his wife, Tota, was unfaithful to him, and had a child by her paramour, named *Zara*. When Lelo returned from the war, the guilty lovers caused him to be murdered; but the crime was discovered; the indignant people expelled the criminals from their territory, and it was resolved, in a general assembly of the nation, that, thenceforth, every song should begin with a stanza to the memory of the unfortunate Lelo. There are yet in Biscay, says Mr. von Humboldt, some aged people, who recollect an old song, the burthen of which is

Leluan, Lelo,
Leluan dot gogo.
I think of Lelo, Lelo;
I think of Lelo.

(See *Mithrid.*, vol. iv, p. 353.) III. *Ideology*. We have hitherto considered the elements of language in their simplest forms; we are now to take a view of them as modified by various combinations, which men have agreed upon to facilitate their mutual intercourse. These modifications have been called *grammatical forms*, and are by no means the same in all languages, but differ according to the points of view in which men have considered the ideas which they meant to express, or, rather, to awaken in the minds of others, by words and sentences. There are very few ideas that we may call absolutely simple; when we speak of a *tree*, we have in the eye of our mind, "a plant fastened to the ground by means of roots, having a trunk, leaves and branches, and bearing flowers and fruits in a certain season." All these things are included in the idea of what we call a *tree*. By a *church* or *temple*, we understand "a place or a house where people assemble to pray to an Almighty Being." To express all this, we may either divide the general idea into its component parts, or combine these together. In the latter case, we shall express the whole by one word, in the former, by several. Thus, in our own language, we say sometimes an *inn*, sometimes a *public house*, and sometimes a *house of entertainment*, making use, indifferently, of one, two, or three words to express the same thing, or represent it to the mind of the hearer. This divisibility of ideas is the origin of *grammatical forms* in language. It is only since the beginning of the present century, that this variety of forms in human language has attracted the attention of the learned, and that the idioms of even the most savage nations have been studied with a view to ascertain their grammatical structure. The results have been not less curious than interesting, inasmuch as they display the various operations of the mind of man in the formation of languages. Great pains were formerly taken to trace them up to a single original type, which was to have been the primitive language; but, as the comparison of words, in respect to their etymology and derivation from each other, has failed in leading us thus far, so has the comparison of grammatical forms, which, as we have observed before, in our article *Language*, rather tends to show that the existing languages have not had a common origin. Let us take a cursory view of their various structures. There is, in the south-eastern division of Asia, a group of nations whose languages are distinguished by a singular formation, the like to which is not found in any other part of the globe. The population of those nations, according to Adelung, amounts to about one eighth of the whole number of the inhabitants of that part of the world. (See the *Mithridates*, vol. i, p. 27.) The languages of those nations are composed of a very small number of monosyllables. M. Remusat, in his *Essai sur la Langue et la Littérature Chinoise* (p. 55), has calculated that those of the Chinese, the best known of these idioms, do not exceed the number of 400, but that, varied as they are by four different tones or accents (some writers say five), they may go as high as 1600, or, at most, 2000. By the side of that spoken idiom there is a *written language* (as it is called), consisting, according to the same author (p. 56), of 80,000 characters. Each of those characters answers to a word or monosyllable of the spoken language, and *vice versa*. (*Grammaire Chinoise, par* Remusat, p. 1.) This would be difficult to comprehend, if we did not know that the Chinese abounds in homophonous words, which are represented by different characters, as in French the words *cens*, *cent*, *sang*, *sans*, *sens*, *sent*, are to the eye different from each other, though to the ear they are the same, and still mean different things. These homophonies, however, produce no confusion in speech, partly owing to the tones or accents, to the place which they hold in the sentence, as is the case in the French words *sage-femme* and *femme sage*, and, above all, to the subject and context of the discourse. Mr. Adelung (1 *Mithrid.*, 87) gives a curious example of those homophonies in the language of Tonquin (one of those we are speaking of), which deserves to be noticed. In that monosyllabic idiom, the word *ba* has six different significations; it means *a lord*, *abandoned*, *something contemptible*, *three*, *present*, and *the concubine of a prince*; and this word, repeated six times, and varied by different tones or accents, makes the following sentence:—"Three lords made a present to the concubine of a prince. How contemptible that is!" Mr. Adelung quotes no authority for this fact, which is, at least, curious, if not exaggerated. Sinologists agree that the Chinese language, on the model of which the Tonquinese appears to be formed, is entirely destitute of grammatical forms. It has no affixes nor suffixes, no inflections of words, declensions of nouns, nor conjugations of verbs, and but very few auxiliary words, designating the various relations of speech. (See Remusat, *Essai sur la Langue*, &c., p. 27.) It is, says Mr. Adelung, a language entirely composed of roots, poor in words, and rich in tropes (1 *Mithrid.*, 43—93); its grammar consists in the choice of words, its syntax in their juxtaposition; it is satisfied with awakening leading ideas; all that is merely accessory or auxiliary is understood or guessed at. Of course, the Chinese idiom is essentially elliptical. This extraordinary structure of language extends to the south to the peninsula of Malacca, where begins another class of languages, and to the west to Hindoostan. Our knowledge of these monosyllabic idioms is yet very limited, but it is daily increasing by the labors of the learned. The Asiatic society of Calcutta, until the late conquest of part of the Birman empire, occupied itself more with the languages of the peninsula of India than with those of the countries situated between the gulf of Siam and the Yellow sea. It is, nevertheless, to that illustrious association that we owe the most detailed facts that we possess respecting those idioms. In the first place, captain Towers has made us acquainted with the languages of Ava and Arracan, and their alphabetical system of writing (5 *Asiat. Researches*, 143); next, Mr. Buchanan initiated us further into the knowledge of the languages, religion and literature of the Birman empire (ibid., page 209); and, lastly, doctor Leyden has given us a most interesting view of the languages which he denominates *Indo-Chinese*, part of which fill the space between the Chinese empire and Hindoostan. Those languages, among which that of Thibet is not included, are fourteen in number, seven of which, including the sacred language called *Bali*, or *Pali*, are polysyllabic, and the seven others monosyllabic. These last are the Bukheng, or language of Arracan; the Barma, or Avanese; the Mòn, or Peguan; the T'hay, or Siamese; the Khohmen, or idiom of Camboje; the Law, or language of Laos, and the Anam, or language of Tonquin and Cochin-China. The seven others are the Malay, and the different languages of the islands of Sunda and the Philippines (10 *Asiat. Res.*, 158, 163). Mr. Klaproth, in his *Asia Polyglotta*, has not adopted this classification of the Indo-Chinese languages. He has divided those called *monosyllabic*, considered in an etymological point of view, into seven branches, which are the Corean, the Thibetan, the Chinese, the Anamitic, the Siamese, the Avanese, and the Peguan. Dr. Leyden's description comprehends all these, except the Thibetan and the Corean, which, however, belong to the class of monosyllabic idioms. This description, nevertheless, is of the highest interest. It shows us the monosyllabic languages gradually mixing with the polysyllabic, and these with them, so that the one or the other form predominates as they approach or recede from the territories of China and Hindoostan respectively, until one of them assumes the entire mastership. Thus the languages of Ava and Arracan borrow polysyllabic words from those of their neighbors; those changes, however, are not numerous, the general character of the language always remaining monosyllabic. On the other hand, doctor Leyden shows us the Malay idiom, participating, in a very high degree, in the simplicity of the monosyllabic tongues,—a character which this class of languages preserves quite across the Pacific ocean to a very short distance from the American continent, where suddenly appears the most complicated system of human language that exists, perhaps, on the face of the earth, extending over the whole of this vast continent. This picture is admirable, and gives rise to a crowd of reflections. Here would be the place to describe the grammatical forms and character of that remarkable class of languages which pervades the whole continent of America, thence passes over into Greenland on the one side, on the other into that neck of land in Asia inhabited by the Tschutschki, and which, it is well ascertained, once prevailed in the West India islands. But this has been so fully done in the article *Indian Languages*, contained in the Appendix to the sixth volume of this work, that further expatiating upon that subject would be but a useless repetition; and we therefore will content ourselves with referring our readers to that article. It will amply satisfy their curiosity. The monosyllabic languages of south-eastern Asia and the polysyllabic idioms of America may be considered as the two extremes in the great chain of human modes of speech. On the one side, we find the greatest simplicity and a total absence of forms, a scanty number of words, and those all monosyllabic, while on the other we observe all the opposite characteristics, languages essentially polysyllabic, and in which monosyllables are rarely to be found, artificial and complicated grammatical forms, words that can be compounded to any extent; and, what is more remarkable, the former class of languages belongs to nations in a great degree civilized, and who, for many ages, have cultivated arts and sciences, and lived under regular governments, while the latter are spoken by savage nations ignorant of arts, associating without laws or forms of government, and living together in a state of nature. No reasoning *à priori* could ever have led to the supposition of similar results; but the facts exist, and cannot be denied, and philosophy is at a loss to point out the cause from which they have been produced. Passing on from Greenland, the northeasternmost part of America, to Iceland, and from thence to the north-western coast of Europe, we find an immense and an abrupt change in the character of languages. The Scandinavian dialects are not, indeed, monosyllabic, but they abound in prepositions, conjunctions, and a variety of particles, with which their discourse is chiefly connected. Few inflections exist in those languages. Their grammatical forms are simple, their syntax natural, and their system, on the whole, the least complex of any that exists in that part of the world. On the Asiatic side are the idioms of the Samoiede and Siberian tribes, the structure of which is but little known; but it is sufficiently ascertained that it bears no resemblance to that of the American languages. In Japan, we are struck with a remarkable fact—two languages existing at the same time, the one monosyllabic and atactic, like the Chinese, and the other polysyllabic, with numerous inflections and grammatical forms. The former is called the *Koye*, the latter the *Yomi*. Both are in use at the same time, and occasionally intermix with each other, still preserving their general character and peculiar structure. (See *Elémens de la Grammaire Japonaise, par le P. Rodriguez, traduits du Portugais, par M. C. Landusse* (Paris, 1825).—It would be exceeding the limits of this article, were we to take notice of all the varieties that exist in the structure and grammatical forms of the numerous languages of the ancient continent. It is sufficient to have pointed out the most striking diversities, and to have marked out the way for those who are disposed to inquire further into this interesting subject. It is a wide field, which has as yet been but superficially examined, and from a more particular investigation of which most important results may be expected. Hitherto, the classification of languages by philologists has only had regard to their etymological affinities. They have been divided into families, supposed to have been derived from a common stock, or from each other. No objection can be made to this distribution, which has been followed by Adelung, Vater, Klaproth, Balbi, and all the other eminent linguists. But languages are also susceptible of being classed according to their grammatical structure, which is not the least prominent feature in their external appearance; and such a classification will considerably aid in tracing idioms to their respective sources. Mr. Duponceau has given us an outline of his ideas upon the subject. He has only noticed the great divisions, and sketched out a few genera, leaving the species and varieties to be described hereafter. He divides the languages of the old hemisphere into four classes, the first consisting of the Chinese and its cognate idioms, which he calls *asyntactic*. The Scandinavian and Teutonic languages form a second class, which he calls *analytic*, "because," says he, "their forms are so organized that almost every idea has a single word to convey or express it." The third class consists of those languages in which several ideas are combined into one word, by means of inflections, affixes, suffixes, and other grammatical forms. Such are the Oriental languages, the Latin, Greek, Slavonic, and others of the same description. These he calls *synthetic*. Of the French, Italian, Spanish, Portuguese, with their various dialects, in which conquest has, in a great degree, intermixed the modes of speech of the second and third class, he forms a fourth, which he calls *mixed*. Of the American languages, the most complicated of all, he makes a fifth class or genus, under the name of *polysynthetic*. (See the correspondence between Mr. Duponceau and Mr. Heckewelder in the first volume of the Historical and Literary Transactions of the American Philosophical Society, pp. 400, 401.) It is easy to perceive that this is not a complete classification of languages in respect to their forms. The Basque does not appear to be included in any one of the five classes; nor is the Coptic noticed, nor the Finnic, and others of the family called *Tschudish*, though all those idioms, and others, such as, for instance, the Malay and its numerous family, have peculiar characters, which philology will hereafter more accurately define. The languages of the interior of Africa will also be a subject of particular investigation in this point of view. The ideology of languages, as we have already observed, is yet in its infancy, and waits the hand of genius to methodize and elucidate it. If, however, it shall continue to advance, as it has done within the last thirty years, there is no doubt but that it will, in time, throw considerable light on the history of man.

PHILOLOGY, *in a narrower sense*. At the beginning of the preceding article, the various meanings of the word *philology* have been given, and the subject has been treated in its widest acceptation. We shall now give a few words on philology in a more limited sense, meaning the knowledge and criticism of the ancient languages and the works written therein, in which sense the word is commonly used by the Germans, who give to the science in its wider sense the designation of *Linguistik* or *Sprachenkunde* (science of languages).—*History of Philology.* Eratosthenes (270—290 B. C.) was first called *philologus.* He was famous as an astronomer and geographer, and was, at the same time, superintendent of the Alexandrian library. The philology of the early Alexandrians embraced antiquities, in its wider sense, especially mythology, grammar, hermeneutics, grammatical and philosophical criticism, rhetoric and prosody. (See *Alexandrian School.*) Through their means chiefly the most important monuments of Greek literature have descended to us; and our power of understanding and relishing them is, in a great measure, owing to the investigations of the Alexandrians into the use of words, the construction of language, the genuineness of whole works and single passages, and to their learned commentaries and compilations. Creuzer, in his learned and ingenious work On the Academical Study of Antiquity (in German, Heidelberg, 1807), thinks that traces of this philology are perceptible as early as the age of the Pisistratides, whose merits, in respect to the collection of the Homeric poems, are known; also in the establishment of libraries after the time of Pisistratus, in the spirit of inquiry which marked the Sophists, and the manifold learning and literary accomplishments of Aristotle; but Alexandria he justly calls the first centre of a learned life and activity. In Asia Minor, also, where Pergamus was distinguished, whose kings, particularly Attalus II (died 153 B. C.), were patrons and cultivators of literature; in Greece Proper, particularly in Athens and Rhodes; in Magna Græcia, and, more especially, in Syracuse, literati and philologists in the narrower sense arose. Scholiasts and lexicographers are found among the Greeks as late as the fifteenth century, since the influence of Greek literature in the Eastern Roman empire never ceased entirely. The Romans were first led to a scientific study of the Greek language by the Greek Crates of Mallus (169 B. C.). Philological or grammatical science embraced, according to Cicero, also the critical study of the Greek poets, the knowledge of history, the explanation of words, and correct pronunciation. Besides the Greek, the Roman language and Roman antiquities were also cultivated by M. Terentius Varro, a celebrated historian and multifarious writer (116—27 B. C.), M. Verrius Flaccus (under Augustus), Asinius Pollio and others; and the principles of the Greek language were applied to the Latin. Lucius Plotius taught Latin grammar in Cicero's time. M. Fab. Quintilian and Aul. Gellius were philologists in a wider sense. The most considerable libraries were carried to Rome. Roman literature strove to imitate the Greek. Then appeared commentators on Roman authors (as Asconius Pedianus on Cicero's speeches, Ælius Donatus on Terence and others) after 50 A. D., of whom many delivered lectures on the Roman classics. Donatus (354 A. D.) and Priscianus (524 A. D.) are among the chief writers on Latin grammar. In proportion as Christianity extinguished paganism, the study of the Greek and Roman antiquities and literature was discouraged, especially by the earliest teachers of Christianity, who considered every thing connected with paganism injurious and corrupting, and thus contributed considerably to the decline of learning and science. It was not, indeed, to be expected that the early Christian should have contemplated the excellences and defects of pagan antiquity with that spirit of calm reflection which regards paganism as a necessary link in the chain of human developement. The zeal which drove the first propagators of the new faith to act and to suffer for their religion naturally excited them against a literature which sprung from a pagan period, and breathed a pagan spirit. Another cause of the decline of learning is found in the irruption of the rude Teutonic tribes into the Roman empire, by which many literary institutions, particularly those established by the emperors for the education of the higher classes, were ruined. But the clergy needed a learned education, especially the knowledge of ancient languages, to prepare them for the discharge of their religious duties. This brought the cultivation of profane science into the hands of the clergy, who connected schools with the abbeys and convents, in which the (so called) seven liberal arts (q. v.) were taught. The institutions of the Christian priesthood, therefore, now became the ark in which the ancient sciences, such as they then were, were preserved amidst the ruin of civilization. In these seminaries of instruction generally the text-books of Martianus Capella (461 A. D.) and Cassiodorus (who died 563) were used, as they had been in the schools of the empire. Such clerical schools are first found, in the sixth century, in France, later in Ireland, Scotland and England. The studies pursued were, indeed, at first limited to the purposes of theology. The Latin language therefore took a new color, particularly as hardly any other language was written; and the want of classical knowledge, the influence of clerical and religious conceptions, and the rise of modern European languages, modified its character. Thus originated monkish Latin. The progress of learning was much promoted by the foundation of the Benedictine order by Benedict of Norcia (died 544), in the rules of which it was ordered that, in every convent of the order, instruction should be given, books copied, and libraries collected. The schools which Charlemagne' and his learned friends established conduced to the study of the ancient languages. But it was not till the tenth century that good taste, and learned education, and a comparatively pure Latinity, may be said to have existed. These had their origin in the frequent reading and copying of the classics. In this consists the chief merit of the congregation of Cluny, and, at a later time, of the order of Cistercians and Carthusians (since the twelfth century). The Arabian literature and language spread considerably after the seventh century, and gained much influence. Philology was preserved and fostered by the Arabians, and, particularly, Greek literature revived. Their own language received a learned character as early as the seventh century. In the eleventh and twelfth centuries, many great men distinguished themselves by a more profound study of classical literature, especially in Italy (where, after the twelfth century, several universities were established), in France and England. To these belong Lanfranc of Pavia and his pupils Anselm of Aosta, the learned Gerbert (pope Sylvester II, who died 1003), bishop Abbo of Fleury (died 1004), and Bruno of Cologne (died 1101). Learned theology led to the study of philosophy, and this to Plato and Aristotle. Men like Abelard (died 1142), Bernard of Clairvaux, John of Salisbury, Roger Bacon, and others, understood Greek, and wrote better Latin than their predecessors; but they had to struggle hard with the ignorant and intolerant clergy, after which (in the thirteenth century) the study of the Roman classics and the cultivation of a purer Latinity ceased again almost entirely. In the thirteenth and fourteenth centuries, we find some institutions in which the knowledge of the Oriental languages, as far as was necessary for missionary purposes, particularly Hebrew and Arabic, were taught; and the knowledge of them was increased by the intercourse between Christians and Mohammedans in the crusades; but the languages could hardly be said to be scientifically cultivated. In the middle of the fourteenth century, the genius of classical antiquity revived again in Italy, whence a more profound study and a more elegant criticism of the classic languages and literature diffused itself over all parts of Europe. Italy became the first theatre of true philologists. Two of her greatest national writers, Petrarca and Boccaccio, enthusiastic for the productions of antiquity, labored effectually for the diffusion of Roman and Greek literature. Cicero and Virgil attracted, particularly, the attention of the former, yet he induced Boccaccio to learn the language of Homer and Plato from fugitive Greeks—a study in which his own advanced age prevented him from succeeding. Boccaccio obtained the appointment of John of Ravenna, a pupil of Petrarca, as teacher of Roman literature in Florence, his native city, and of Leontius Pilatus, and, after him, Manuel Chrysoloras (1397), as teachers of Greek literature. Through the efforts of the latter, as well as those of Argyropulus, and others, who fled to Italy when the eastern empire was destroyed, a more thorough knowledge of the Greek language and literature was diffused by writings and oral instruction. Lectures on ancient literature were delivered in all the larger cities of Italy, even in those which had no universities. The enthusiasm of the teachers communicated itself to their hearers, and it became customary with republics and princely houses (from 1400 to 1450) to patronise classical literature, and to restore a purer taste by its study. This study, in fact, was elevated to a national concern. A zeal for classical literature animated all classes in Italy in the fifteenth century, and every where philological societies were founded. Many private and public libraries were also established, and the treasures stored up in the convents made more accessible, since the times of Petrarca and Boccaccio, who themselves collected the works of Roman and Greek writers, and circulated copies of them. Cosmo of Medici founded at Florence the Platonic academy (1429); his nephew Lorenzo collected the richest treasures of literature and art, and attracted the most distinguished scholars to that city of the muses. In Rome, Nicolas V was active; in Milan, Visconti; in Verona, Della Scala; in Sicily, king Robert; in Venice, Aldus Manutius formed a circle enthusiastically devoted to classical literature, and the new art of printing was particularly serviceable to the study. The works of ancient authors were now rapidly multiplied: collections and commentators appeared, and philology was enabled to assume a scientific form, as different scholars could avail themselves with comparative ease of the fruits of each other's labors, and the standard works of taste and criticism became comparatively secure from loss and injury. The study of the classics and of ancient languages was no longer confined to the purposes of theology, but was directed to the general improvement of the human mind. Successful imitations of the ancients were now produced, and a purer Latin style arose, on which, perhaps, too great a value was laid. To this period belong Leonardo Bruni of Arezzo (1370 to 1444), Poggio Bracciolini (1380 to 1459), Lorenzo Valla (1407 to 1457), Nic. Perottus, Franc. Philelphus, Pompon. Lætus, Marsilio Ficino (1433—1499) and Angelo Poliziano (1454—1492). From Italy, this renewed zeal for the cultivation of philology first communicated itself to France. We find, in the fifteenth century, Greek and Italian teachers of philology in Paris, and many translations of Roman classics into French. This period, with its momentous consequences, is of the highest importance to the student of history. A new era begins in the history of civilization with the revival of the study of the classics, which, by degrees, exercises a decisive influence on religion and politics, the sciences and arts, and the whole tone of society. It is a most interesting task to the philosophic student, to trace the causes of this triumph of pagan civilization over Christian Europe, by means of the languages and literature of ages long gone by; to witness the gradual awakening of the nations in proportion to the enthusiasm with which they devoted themselves to the new study; to contemplate the gradual decline of this enthusiasm after it had produced its proper effects (as the blossom fades when the fruit is formed); and to analyze the injurious consequences of the exclusive hold which these studies so long possessed over the minds of men;—we say *injurious* consequences, for it is, perhaps, a law of our nature that the causes which strongly stir mankind, and urge them forward in civilization, must lead to excess and corruption, eventually removed by the action of some new mighty agent; and the undue devotion to classical antiquity did produce, in some respects, deleterious effects, from which our age is now laboring to free itself. In England, a scientific philology was introduced about the end of the fifteenth century, by means of some scholars educated in Italy. In Germany, it came in principally through the Netherlands, and the way for it was prepared by a reform in the mode of teaching in schools in Lower Germany. The first philologists of Germany were educated in Italy; for example, Rud. Agricola (1442—1485), C. Celtes (1459—1508), and John Reuchlin (1454—1521). The first was a scholar of Thomas a Kempis, the second was principally distinguished as the founder of learned societies in Germany, the last by the revival of the Hebrew philology. In this century, we find one of the first humanists (*humaniora* was the name given, since the middle ages, to the sciences which introduced the student to an acquaintance with classical antiquities, and the teachers of these sciences were exclusively called *humanists*), who exerted a great influence in Germany, and particularly promoted the study of Greek literature—we mean Desiderius Erasmus (q. v.) (1467—1536). But from the end of the sixteenth century, when the study of ancient literature had again declined in Italy (in later times, it has been cultivated there almost with an exclusive reference to the history of art and to antiquities), Holland was the school of the greatest philologists, who did much service, particularly in regard to the etymology of the ancient languages, in grammar, verbal criticism and grammatical explanations, and, more lately, have applied philology principally to the study of jurisprudence. Among the scholars of Holland is the celebrated Hugo de Groot (Grotius) (1583—1645), who was a master in exegesis, and united philology more closely with theology; Justus Lipsius, Adr. Jonghe (Junius), Gruter, Dan. and Nic. Heinsius, the Gronovii, Burmann, Perizonius, Lamb. Bos, Siegbert Havercamp, Drakenborch, Oudendorp, Hemsterhuis, Wesseling, Lennep, Hoogeven, Valkenaer, Ruhnken, Wyttenbach, and others. Oriental philology was also here advanced; for example, by the celebrated Orientalist Erpenius (1584—1624), Leusden, H. Reland, Albert Schultens (1686—1750), who makes an epoch in this science, &c. Th. Creech, Barnes, John Hudson, Baxter, Clarke, John Taylor, Rich. Davis, Wakefield, Robert Wood, Zach. Pearce, Middleton, Potter, Heath, Warton, Musgrave, Tyrwhitt, John Toup, Rich. Bentley and Rich. Porson are the most distinguished among the English classical philologists. But Oriental philology was also much cultivated in England, by Selden, Lightfoot, Walton, Sam. Clarke, Pearson, Castell, Lowth, Kennicot, &c., and the study of the modern languages has been carried, by the diffusion of the English over so many countries, to an unexampled height, while the study of classical philology has somewhat declined in that country. In France, philology, especially since the commencement of the sixteenth century, has found many patrons and friends. In that country, it has been applied particularly to theology and jurisprudence, but less cultivated as an independent branch of science. Among the French philologists of the former sort are William Bude or Budæus (1467—1540), and after him, James Cujacius, Brissonius Dionysius Gothofredus (who died in 1622), and others. Among the classical philologists of France are distinguished Lambin, Muretus, the learned printers Rob. and Hen. Stephanus (Etienne), the multifarious scholar Jul. Cæs. Scaliger (Della Scala, originally of Verona), his son Jos. Just. Scaliger, also Hadr. Turnebus (Tournebœuf), Claudius Salmasius (Saumaise), Isaac Casaubon, Vigerius (Vigier), Du Fresne, Faber (Le Fevre), the archæologist Montfaucon and others. The study of classical literature had a great effect upon the French national literature, in which (for instance, in tragedy) they strove to imitate the ancients. In later times, philological studies have been very much neglected in that country, and it affords only a few distinguished names, as Villoison, La Rochette, Boissonade, Larcher, Gail. In the seventeenth century, Oriental philology found friends among the French—Bochart, D'Herbelot, Le Jay, La Croze, Houbigant, and others; and owes much to the celebrated scholars of our time, Silvestre de Sacy and Louis Matthieu Langlès. The knowledge of modern languages has been less necessary to the French on account of the great extension of their own. The Spanish and Portuguese have only a few distinguished philologists; but the number of Germans who have investigated profoundly and extensively the classical languages and antiquities is very great. To the sixteenth century belong Joach. Camerarius, the promoter of Grecian literature; the lexicographer Bas. Faber, and the learned antiquarian Joh. George Grævius (Gräve); to the seventeenth century, in which philology was less favored, the learned Caspar Barth, John Freinsheim, Weller, Chris. Cellarius; to the eighteenth, Ludolf Küster, Francis Budæus, J. A. Fabricius, Lange, Frisch, Hedericus; since the middle of that century, John Matth. Gesner established a profound and tasteful philological school, with which the flourishing period of independent philology begins among the Germans, which was carried to a great height by Winckelmann, Lessing and Herder. In later times, Germany can boast of Ernesti, Reiske, Heusinger, Duker, Wesseling, Fischer, Reiz, Brunck. To the nineteenth century belong the following, the greater part of whom are still living:—Heyne, Wolf, Beck, Schneider, Harles, Matthiä, Buttmann, Schütz, Oberlin, Spalding, Schweighäuser, Hermann, Heindorf, Schäfer, Böckh, Creuzer, Schleiermacher, Bekker, Voss, Eichstädt, Jacobs, Passow, and others. Oriental philology, particularly the Hebrew literature and language, was cultivated in the sixteenth century, by Buxtorf; in the seventeenth, by Glass, Pfeifer; in the eighteenth and nineteenth, by Michaelis, Dantz, Dathe, Hezel, Cocceii, Schnurrer, Tychsen, Eichhorn, Paulus, Von Hammer, Vater, Gesenius; of late the Sanscrit by A. W. Schlegel, Kosegarten, Bopp, the Chinese by Montucci and Klaproth, and several others. The influence of this philological industry appears principally in theology, for we find the greatest exegetical writers among the Germans since the time of the reformation. Melanchthon and Beza were distinguished before. In the seventeenth century, there follow Jablonski, Herman von der Hardt, Reineccius, Simon; in the eighteenth, Semler, Ernesti, Morus, Koppe, Ilgen, Griesbach, Matthäi, Storr, Nösselt, Knapp, Paulus, the Rosenmüllers, De Wette, &c. Jurisprudence was investigated from its sources by means of philology, and cultivated as one of the learned sciences, which character it still bears in Germany. The study of history and geography has been, by its means, cultivated and extended in various ways, and no department of the sciences and arts has been without its support, and, conversely, the study of classical literature has been promoted by antiquarian and archæological knowledge, as in the cases of Heyne, Böttiger, Voss. In the history of philology, since the revival of learning, Creuzer distinguishes several periods. The first was characterized by the spirit of imitation, when men were enraptured with the beauty of the works of genius to which they were for the first time introduced, and a spirit of imitation almost unconsciously took possession of them, and appeared in all their labors. At this time, they had not learned to distinguish what was accidental from what was essential to the excellence they so much admired. Representatives of this period are Poggio, Angelo Poliziano, and Marsilio Ficino, the latter a reviver of ancient philosophy. Then follows the period which Creuzer calls that of *realism*, when men became possessed with a love for wide and deep learning. It had its origin in the well founded opinion of the necessity of great and thorough knowledge for the restoring and illustrating of the works of antiquity, but it led to the accumulation of unwieldy stores of learning, which impeded the proper activity of the mind. Scaliger, Claude Saumaise, Gerh. and John Vossius, Casp. Barth, and others, represent this period, and partake more or less in its errors. What these great accumulators had brought together was first rendered truly useful by the critical labors of the following period, which we may call the *period of understanding*, when a discriminating criticism was applied to these stores. The merits and the genuineness of ancient works were now more carefully examined. A more accurate study of language and a more continual reference to the context, gave greater weight to criticism. A methodical arrangement of knowledge, judicious selection, acute thinking, and correct taste, were now more prized than vast erudition. In this period, the bold and ingenious Richard Bentley, the thorough and judicious Tib. Hemsterhuis, are distinguished. Ruhnken, Valkenaer, and several of the living philologists of Germany, including the celebrated Greek scholar Hermann, belong to the same class. The meaning of *philology*, even in the limited character in which it has just been considered, is not accurately settled. The famous Fr. Aug. Wolf calls it, without any qualification, the science of antiquities in general.—See *Museum der Alterthumswissenschaft*, edit. by Wolf & Buttmann (vol. i, No. 1, 1807). Others go equally far in restricting its meaning. Wherever the limits of the two sciences may be fixed, it is certain that philology and archæology are so intimately connected that one is indispensable to the other. Philology, as the science which embraces the languages and literature of antiquity, comprises an acquaintance with grammar, with hermeneutics, or the science of interpretation (implying, of course, the power of criticism and emendation), with the theory of prose and metrical composition and with the history of Greek and Roman literature. Wolf says there exist 1600 Greek and Roman authors, preserved entire or in fragments, exclusive of the fathers of the church, and of this number, the Latin authors amount to little more than a quarter. The auxiliary sciences to philology are, *a.* ancient geography (which is divided, by Wolf, into mythical geography, or *uranography*, historical geography, with chorography and topography); *b.* the general history of the nations of antiquity, together with chronology and historical criticism as subsidiary to it; c. Greek and Roman antiquities (q. v.), or the history of particular circumstances, of the constitution and customs of the chief tribes of Greece and of the Romans; *d.* mythology, or a knowledge of the religious tales of the Greeks and Romans; *e.* the history of their philosophy and their other sciences; *f.* the history of ancient art, poetry included; *g.* archæology, to which belong epigraphics, or the knowledge of the inscriptions of both nations, and numismatics; *h.* the history of philology; *i.* æsthetics (particularly in relation to poetry) and philosophical criticism on the value of ancient authors. In the history of philology we have touched upon the remarkable hold which the literature of Greece and Rome, above that of all other nations, has acquired upon the minds of men, and it is not strange that so beautiful a literature, falling finished into an age in many respects benighted, should always retain great influence, having been, in fact, the source of our civilization, and presenting models of excellence attained under the most favorable circumstances, in addition to the beauty of the idioms in which they are clothed. The Greek, in particular, is the most finely organized and most fully developed language with which we are yet acquainted. In consequence of these circumstances, this science has been, and still is, overrated, and often pursued with an exclusive and injurious preference, which is nourished by the present system of school instruction in Europe. The Germans, we believe, are at present the most devoted to philology—a consequence of the studiousness that distinguishes the country, and which arises itself from the restraints upon action, at least to a considerable degree. To conclude, with a few words of Wolf, "The exercise of the thoughts on languages (which involve much of what is highest and most profound in the operations of the mind), particularly on foreign languages, throws open the field of abstract inquiry, and excites to the study of the intellect. The thorough study of the written works of antiquity serves as a means for the vigorous developement of the powers. All the powers of the mind are occupied by the explanation and emendation of these works. And what a fund of knowledge is afforded by the view which they present of the developement of man and of society in ancient times! In ancient Greece, we find, what we search for in vain almost every where else, nations and states which possessed in their nature most of those qualities which conduce to perfect the character of man, a people of so lively and susceptible a spirit as to leave no field of action which presented itself untried, and who pursued, in this way, the path of improvement more independently of the nations around them, and for a longer period, than was possible in after times and under altered circumstances; who forgot the man so little in the citizen, that the civil institutions themselves aimed at the developement of the human powers by general sacrifices; who, in fine, with an extreme sensibility for every thing noble and graceful in the arts, united such depth in scientific researches, that they have produced the first admirable masters in ideal speculation as well as the most beautiful works of art." This is the field presented to the student of philology.

Philomela; a daughter of Pandion, king of Athens, who was transformed into a nightingale. According to the fable, Progne, sister of Philomela, married the Thracian prince Tereus, by whom she had a son, Itys. When Itys had grown up, Tereus went to Athens, and, at the persuasion of his wife, took her sister with him on his return. On the way, Tereus violated her person, and, to conceal his crime, cut out her tongue. But Philomela made it known to Progne by means of some tapestry, on which she embroidered her story. To gratify their revenge, they murdered Itys, and served him up to his father. When he saw the remains of his son, he pursued them; but they invoked the gods for help, and they were all immediately transformed. Progne fled to the woods in the form of a nightingale, lamenting for Itys. Philomela mournfully uttered *Tereu*, under the form of a swallow, in broken chirpings, on account of the mutilation of her tongue; and Tereus, in the form of a lapwing, uttered a piercing *poo*, or *woo*. Another story makes Philomela the wife and the nightingale, and Progne the sister and the swallow.

Philopœmen, the last great military commander of the Greeks, was born at Megalopolis, in Arcadia, B. C. 253, and, after the early death of his father, was educated by Cassander, a noble Mantinæan. Two academical philosophers were his teachers, and instilled into him high principles of honor and patriotism. Disinclined to a life of study, and thirsting for enterprise, military glory was his ambition, and to that all his youthful exercises were directed. No sooner had he begun to bear arms, than he joined his countrymen in their incursions into the Spartan territories. When he was thirty years old, Cleomenes, king of Sparta, surprised Megalopolis by night, and Philopœmen, who had unsuccessfully endeavored to repel him, covered the retreat of his fellow-citizens to Messene, at the extreme hazard of his own life. When Antigonus, king of Macedonia, came to the assistance of the Achæans against Cleomenes, Philopœmen joined him with the cavalry of his native place, and distinguished himself in the battle of Sellasia, in which the Spartans were totally defeated. Antigonus proposed to take him into his service; but Philopœmen would only consent to serve some years as a volunteer in so excellent a school of warfare, and, in that capacity, was engaged in the war in Crete. Returning with a high reputation, he received from the Achæans the command of their cavalry, which, under him, became formidable throughout all Greece. In a battle with the Ætolians and Eleans, he killed, with his own hand, the commander of the Elean cavalry, and thus decided the victory in his favor. In 210 B. C., he was appointed commander-in-chief of the forces of the Achæan league. After having reorganized the Achæan army, he led it into the field against Machanidas, tyrant of Sparta, who was advancing at the head of a powerful force, against Achaia. They encountered each other at Mantinea. After a hard struggle, Philopœmen killed Machanidas in single combat, and gained a complete victory. The Achæans perpetuated the memory of this achievement by the erection of a bronze statue in the temple of Delphi. When the Achæans had declared war against Nabis, a later Spartan tyrant, and Nabis had besieged Gythium, Philopœmen attacked him by sea, but was defeated. He then surprised the enemy's camp, advanced against Sparta, overthrew the forces of Nabis, and destroyed a great part of them. Nabis was soon after murdered, and Sparta was taken and pillaged by the Ætolians, against whom the inhabitants had risen, when Philopœmen arrived before the city with a small force. He took advantage of this emergency to prevail upon them to join the Achæan confederacy, 191. They were desirous of showing their gratitude to the restorer of peace by a present of 120 talents, but he refused to accept it. But the Spartans soon became dissatisfied, separated from the confederacy, and called in the Romans to their assistance. Philopœmen, as commander of the Achæans, declared war against Sparta. The Roman consul Fulvius endeavored to mediate between the parties; but their ambassadors returned from Rome with an indecisive answer. Philopœmen, however, proceeded against Sparta, and demanded the surrender of the authors of the disturbances. Accompanied by the principal Spartans, they presented themselves in the Achæan camp; but, while the complaints were under examination, an affray took place between them and the Spartan exiles, in which the Achæans also engaged. Seventy-three Spartans were seized, and executed by Philopœmen, after a short trial. The city was consequently surrendered and treated by Philopœmen with the same rigors as if it had been taken by storm. He commanded the Spartans to destroy their walls, to dismiss their mercenaries, to admit the exiles, to expel the slaves who had been set free by the tyrants, and substitute the Achæan code for the laws of Lycurgus. The Romans, to whom they had recourse for protection, declared these conditions too severe, but added that they had no right to violate them. Soon after, however, the Roman senate, eager to humble the powerful Achæan confederacy, sent an embassy to induce it to soften their rigor. Philopœmen procured the rejection of this demand; but the Romans finally prevailed on the federal congress to admit Sparta again into the confederacy as an independent state. Hardly was this affair settled, when Messene revolted. Philopœmen, though broken by infirmity and disease, marched against the insurgents, and at first beat them back, but was afterwards attacked with such fury, that he was obliged to give way. Separated from his followers, and thrown from his horse, he fell, dangerously wounded on his head, into the hands of the enemy. He was carried in chains to Messene, where his appearance moved to tears many of the inhabitants who had fought under him, and on whom he had conferred benefits. To destroy this impression, the government caused him to be thrown into a subterraneous dungeon, and, the next morning, he was obliged to drink poison. When he received the cup, having been informed that his troops had saved themselves, he said, "That is enough for me; I die content;" and emptied it with a cheerful countenance. Thus died (B. C. 183) one of the greatest generals of Greece, whom the ancients compared to Hannibal and Scipio. His ashes were transported to his native city with great pomp; statues were raised to his memory in most of the Grecian cities, and a yearly offering was made at his tomb by the city of Megalopolis.

Philosopher's Stone. (See *Alchemy*.)

Philosophy, Intellectual. (See *Appendix*, end of this volume.)

Philosophy, Natural, or **Physics** (*physica*, *physice*, from φυσις, nature), is that branch of science which treats of the laws and properties of matter. *Natural history* (q. v.) describes the external characters and appearances of natural objects, while *chemistry* (q. v.) separates them into their elements, and explains the modes of the composition and mutual action of these elements upon each other: *natural philosophy*, on the other hand, deals with matter in its integrant forms, and points out those properties which belong universally to matter, and those laws whose operation is implied in the very definition of the term *matter*. It therefore comprises astronomy (q. v.), which explains the causes that keep in motion, and bind in fixed orbits, the great train of worlds and systems of worlds composing the universe; mechanics (q. v.), in its different divisions (see *Acoustics*, *Hydraulics*, *Hydrostatics*, *Pneumatics*); optics (q. v.), or the science which explains the motions and laws of light; the laws of heat, electricity and magnetism, except in regard to their chemical properties, also fall within the jurisdiction of natural philosophy. In respect to the method of investigation, it is sometimes by mathematical calculation, and sometimes by observation (experimental philosophy); but these two instruments of truth are more commonly united in illustrating and confirming each other's results than employed in distinct departments of research. In regard to the theory of matter (q. v.), natural philosophers are at present divided, the one school maintaining that all bodies are composed of continuous matter, the different states of which are owing to the contending action of two opposite powers, expansion and attraction; the other, that matter is composed of minute particles, or atoms of unchangeable forms, which primitive forms produce particular modifications of the natural powers. (See *Dynamic Theory*.) The Egyptians, Chaldeans and Phœnicians were, in the earliest periods, celebrated for their knowledge of mechanical, chemical, astronomical and physical science. Among the Greeks, Thales, the founder of the Ionic school, was the first who separated natural philosophy from allegory and fable; but the later Greek philosophers again carried natural science backward, by indulging in metaphysical speculations in their studies of nature. Plato and Aristotle are the most distinguished of this class, although the writings of the latter are less faulty in this respect than those of the former. Pythagoras taught that certain monads were the final causes of the phenomena of matter. His school, however, had some indistinct conceptions of the Copernican system. The atomic theories of Leucippus and Democritus made near approaches to the atomic theory of the present day. The works of Theophrastus, Hippocrates, with the writings of Aristotle, on physical subjects, show that the Greeks, notwithstanding their speculative turn of mind, did not entirely neglect observation. Among the Romans Lucretius is distinguished by his poem *De Rerum Natura;* Seneca, by his *Quæstiones Naturales*, and Pliny, by his *Historia Naturalis*. In the middle ages, natural science was involved in a deep darkness, rendered still more impenetrable by the clouds of scholastic philosophy. Among the Arabs, however, it was not entirely neglected. Francis Bacon (q. v.) first dissipated this night by the light of a sounder method of investigation, founded on observation (in his *Novum Organum*). At about the same time, Galilei (q. v.) discovered the laws of the fall of heavy bodies, and of the pendulum, and Torricelli invented the barometer. Kepler explained the laws of the motions of the heavenly bodies, and, by happy applications of geometry, laid the foundation of optics. Otto von Guericke invented the air-pump, and Descartes now found it easy to pull down the tottering fabric of the physics of the schools. (See *Scholastic Philosophy*.) While he was attempting to substitute a better metaphysical foundation for natural science, Boyle and Hooke in England, Borelli and Grimaldi in Italy, and Pascal, Mariotte and Picard in France, successfully cultivated experimental physics; the royal society was instituted in London, the academy of science in Paris, and the Accademia del Cimento in Florence; and these institutions had a powerful and happy influence on the progress of physical studies. Finally appeared Newton (q. v.), who, by his *Philosophiæ Naturalis Principia Mathematica* (1687), became the founder of modern natural philosophy in all its brilliancy. We cannot follow it in its splendid course, and can only allude in general to the improvements of the thermometer, the discovery of the gases, the discoveries in electricity, particularly of the lightning-rod and of galvanism (q. v.), the substitution of oxygen, by Lavoisier, to the phlogiston of Stahl, the reduction of the alkalies and earths, the discovery of iodine and chlorine, of the polarization of light, of the connexions between electricity and magnetism, &c., which are more particularly treated of under separate articles. The uses of the study of natural philosophy are too obvious to require mention, since our comfort and safety depend upon a knowledge of the powers and properties of bodies; and a right study of nature not only dispels a thousand superstitions, but affords a most striking proof of the existence of an intelligent government of the universe. (See Herschel's admirable *Discourse on the Objects, Advantages and Pleasures of the Study of Natural Philosophy*, in Lardner's Cabinet Cyclopædia.) Among the best works on the history of natural philosophy, are Fischer's History of Physics since the Revival of Letters (in German, Göttingen, 1801, 6 vols.), and Playfair's Dissertation on the Progress of Mathematical and Physical Science since the Revival of Letters, prefixed to the Encyclop. Britannica, and continued by Leslie. On the method of observation in experimental physics, Senebier's *Essai sur l'Art d'observer et faire des Expériences* (3 vols., Geneva, 1802) deserves to be consulted; and, in connexion with it, Sigaud de la Fond's *Description et Usage d'un Cabinet de Physique Expérimentale* (Tours, 1796, 2 vols.); Biot's *Traité de Physique Expérimentale et Mathématique* (4 vols., 8vo.), is the most complete manual. There is an excellent abridgment of this work by the author, *Precis élémentaire de Phys. Expérimentale* (3d ed., 1824, 2 vols., 8vo.). Arnott's Elements of Physics (Am. ed., with additions by Dr. Hays, Philadelphia, 1829) is a good popular treatise.

Philosophy, Peripatetic. (See *Peripatetic Philosophy*.)

Philtre; a love potion. From the earliest times it has been supposed that there were means by which love could not only be excited, but be directed to a particular object. Various substances, from the animal and vegetable kingdoms, have been used for this purpose, some disgusting, some injurious, some without any distinguishing character. The truth is, that physical desire may be produced by physical stimuli, which are called *aphrodisiacs*, but it is absurd to suppose that such means can produce a passion for a particular object.

Phipps. (See *Mulgrave.*)

Phips, sir William, governor of Massachusetts, was born at Pemaquid, Feb. 2, 1650. He was one of twenty-six children, twenty-one of whom were sons. His father died when he was a child. He then bound himself to a ship carpenter, and, in due time, engaged in the business on his own account. He was so illiterate as not to be able to read or write; but he soon acquired knowledge sufficient for the purposes of common life, and was fortunate enough to connect himself, by marriage, with a young widow of a respectable family. In 1683, he sailed from England, in search of a Spanish vessel which had been wrecked near the Bahamas, having gone to the mother country on hearing of the circumstance, and solicited means for the expedition. He was supplied with two frigates by the admiralty, but failed of success. Nothing discouraged, however, he made fresh importunities for means of making a second attempt, which were given to him by the duke of Albemarle. He discovered the wreck, and brought from it £300,000, £16,000 of which were appropriated to his share. He was also knighted by the king, and appointed high-sheriff of New England. After residing for a time, in that capacity, at Boston, he returned to England in consequence of some disagreement with two other functionaries, by which his situation was rendered uncomfortable. In 1690, he captured Port Royal, but was not so fortunate in the expedition against Quebec. In the same year, he was chosen by the freemen a magistrate of the colony. He did not remain long in Boston, but repaired to England to solicit an expedition to Canada. At that time, the agents of Massachusetts were soliciting a restoration of their old charter from king William; but this being refused, and a new one given, sir William was appointed captain-general and governor-in-chief of the province. He discharged the duties of his office with fidelity. His impetuous temper, however, sometimes involved him in quarrels, and complaints were made against him, which he was sent for to answer. He justified himself, and was about to return to his government, when he was taken sick, and died in London about the middle of February, 1694. He was a blunt, honest man, ardent in every thing which he undertook, open hearted and generous, but vulgar in speech and manners. His talents were considerable.

Phlebotomy; the act of letting blood by opening a vein. Among the ancients, great regard was had to the place where the opening was to be made. At present, the custom is to open one of the principal veins of the arm, the hand, the foot, the neck, or the tongue. The operation itself was anciently performed with a spring-lancet; now, for the most part, with a simple lancet. Of the arteries, that of the temples is the only one which is opened, and that is done in cases of local complaints of the head. Another mode of letting blood is by cupping, or by the application of leeches for the purpose of extracting blood from places affected by inflammations. Phlebotomy is one of the most effectual means of the medical art; but its application is differently regarded by the most distinguished physicians. Hippocrates rarely resorted to it; for he considered the cure of fevers and inflammations as the work of nature, and regarded phlebotomy as a mode of weakening the efficacy of her operations. His followers applied it more frequently, sometimes even to excess. The schools of the empirics (250 B. C.), relying, like Hippocrates, on their own experience and on the observation of nature, endeavored to determine the cases in which bleeding was indispensable. But medicine declined with the general decline of science. Greek physicians, indeed, still distinguished themselves among the Romans; but the sect of empirics had degenerated. Excessive bleeding again became common, until Asclepiades of Bithynia (Cicero's physician and friend) taught a new method of phlebotomy. He considered the cause of the greatest number of diseases to be redundance of blood, and, on this account, advocated the practice of bleeding, but principally for the alleviation of pain, and applied this remedy frequently in case of local affections. After him, Celsus gave an account of the cases in which bleeding was necessary (A. D. 5), and his remarks and directions correspond exactly with those of the greatest modern practitioners. Aretæus, founder of a new school (A. D. 70), prescribed bleeding more frequently in acute than in chronic diseases, and, in extreme cases, he bled the patient to complete exhaustion. Galen (160), who referred the origin of a large class of diseases to excess of blood, ordered copious bleedings; and this practice gained great repute, and prevailed for several centuries. After the fall of the Roman empire, physicians were so scarce in Europe, that Charlemagne died of an inflammation of the lungs, for want of bleeding and medical attendance. The Arabian physicians followed the authority of Galen, and spread his doctrine over Spain, Italy and France. Bleeding was still more generally practised by the monks, who were in the sole possession of medicine, as well as of all other science, in those ages. At a later period, astrology was connected with the medical art, and bleedings were prescribed on certain days. The popes, indeed, had often forbidden the monks to practise medicine; but they either disregarded the orders, or considered them as referring only to surgical operations. Thus surgery began to be separated from medicine, and formed a new profession, including the art of bleeding, applying leeches, and shaving. But when, after the invention of printing, the writings of the physicians of Greece, especially of Hippocrates, began to circulate, and their doctrines to revive, the practice of bleeding, at least among physicians, was again confined to certain cases. In Germany, Paracelsus (1525) overturned the system of Galen, and with it the practice of bleeding, which is now confined to the surgeons and barbers alone. In France, Italy, &c., the method of Hippocrates and the degenerated system of Galen were, however, not yet abandoned, and the practice of bleeding was carried to the greatest excess. Helmont (1600), the founder of a new system, doubted the use of extracting blood, alleging against it that it weakened too much the vital spirit, which he called *archæus*. Harvey's discovery of the circulation of the blood (1619) had some influence on the modes of phlebotomy, in as far as it led to experiments (1642) by which medicines were infused immediately into the veins, or a portion of the infected blood extracted, and supplied by the blood of healthy men or animals. In England, Sydenham rose (1673), who thought it possible to expel diseases by copious bleedings. He extracted blood in almost all cases, never less than eight ounces, generally ten or more, and, in cases of inflammation, as much as forty ounces. The pernicious consequences of this practice did not escape him, but he thought he could not subdue disease by any other means. Stahl (1707) attempted to unite the system of Hippocrates with that of Helmont, and established correct and moderate principles of phlebotomy. He taught that abundance of blood was no disease, but might become so by a disproportion created between the solid and fluid parts of the system, in which case the proper balance ought to be restored. But he found bleeding indispensable, in cases of too great excitement succeeded by a congestion or effusion of blood. To prevent this, he prescribed occasional bleeding. His method was soon misunderstood and misapplied. The extraction of blood for the preservation of health was every where thought necessary. Bordeu endeavored to stop this abuse in France. Cullen (1777), who regarded all diseases as proceeding from an unnatural state of the nerves; all irregularities of the fluids as the consequences of weakness and spasm, recommended bleeding as the best means to diminish the activity of the whole body, and especially of the system of the blood-vessels. He recommended, however, a due regard to circumstances, and mainly adopted Stahl's doctrine of the superabundance of blood. Stoll of Vienna (1780), an admirer of Sydenham, resorted frequently to bleeding. Several of the later physicians sought, however, to limit its too frequent application. Wollstein (1791) recommended it only in a few cases. Gall, also, improved the system still more. Brown adhered to the same maxim, and limited the practice of bleeding too much. In modern times, the abuses of phlebotomy have again considerably increased, because the antiphlogistic method of healing has risen into great repute. Bleeding is one of the most effectual, but also one of the most dangerous means of checking disease.

Phlegethon (φλεγεθων, burning), in the Grecian mythology; a river of fire in the infernal regions. (See *Cocytus*.)

Phlegrean Fields; a place in Macedonia, where the battle of the giants was said to have taken place. The name was also applied to a place near Naples (*Forum Vulcani*, *Solfatara*), where the ground is impregnated with sulphur. (See *Giants*, and *Naples*.)

Phlogisticated Air; nitrogen, or azote. (See *Nitrogen*.)

Phlogiston; the supposed general inflammable principle of Stahl. (See *Oxygen*, and *Combustion*; also *Chemistry*, vol. iii, p. 124.)

Phocas's Column. (See *Column*.)

Phocion; an Athenian general, and one of the most virtuous characters of antiquity. Though of humble descent, he received a good education, and imbibed, under Plato and other philosophers, those elevated sentiments which governed his whole life. His external appearance was stern and severe, but his disposition was mild and gentle. His eloquence was distinguished for clearness and brevity; and his opinion was pronounced in the assemblies of the people, freely and without hesitation. He first served under Chabrias, an officer of merit, but of a violent and unequal character. He gained his esteem and moderated his impetuosity. His activity contributed essentially to the naval victory of Naxos (377 B. C.), and he afterwards collected, with great prudence, the taxes of the islands. In the war with Philip of Macedon, the Athenians sent Phocion with some troops to Eubœa, in hopes to induce the inhabitants to form a junction with him. The gold of Philip rendered this project abortive, and Phocion was obliged to retire, with his troops, to an eminence for security. The enemy surrounded him, and made preparations for attack. Reduced to despair, Phocion made an onset, and gained a complete victory. Before the battle, he gave permission to all who desired it, to retire; and, after the battle, he liberated the prisoners, to save them from the fury of the Athenians. His conduct was marked with prudence, boldness and manliness. He banished Plutarchus, who had made himself tyrant of Eretria, and left the island secure from the attacks of Philip. Some time after, the Athenians resolved to yield assistance to the cities of the Hellespont, threatened by Philip, and the command of the fleet was intrusted to Phocion. The inhabitants of Byzantium received him, and he not only saved their city, but compelled Philip to retire from the Hellespont. Notwithstanding their success, Phocion always advised peace. His honesty, disinterestedness and patriotism were so generally acknowledged, that he was nominated commander forty-five times, without once applying for the office. He always led a simple life, and cultivated his small farm with his own hands. When the inhabitants of Megara requested an alliance with the Athenians, Phocion zealously advocated the measure, marched to the city at the head of a large body of volunteers, and rebuilt the walls. When Philip appeared in Phocis, with a view to attack Attica, Phocion in vain advised peace. The battle of Chæronea (A. C. 338) proved the justness of his opinion. The Athenians disregarded the advice of Phocion, not to take part in the assembly of the Grecian states, convened by Philip, till they knew the intentions of the king; and, in consequence, found themselves obliged to furnish Philip with a quota of cavalry and galleys. This they were reluctant to do, but Phocion advised them to submit to adversity with patience. After Philip's death, Phocion advised the Athenians not to expose themselves to new disasters by joining a confederacy against the young Alexander. His opinion was justified by the event. When, after the destruction of Thebes, Alexander demanded of the Athenians the deliverance of the orators who had spoken so violently against him, Phocion undertook the commission of appeasing the anger of the king with the happiest success. Alexander conceived a great affection for him, and sent him a present of a hundred talents, which he declined. The deputies found him carrying water, while his wife was baking bread. But, not to displease the king, he requested the liberation of some of his imprisoned friends. After Alexander's death, the project was formed of freeing Greece from the Macedonian yoke. Phocion disapproved the measure, though he accepted the command. The Athenians were at first successful; but Antipater soon obtained the superiority, and threatened Athens, which was instantly abandoned by the orators who had been so clamorous for war. In this pressing danger, Phocion was sent ambassador to Antipater, who was encamped in the territory of Thebes, and obtained, on hard terms indeed, a promise that he would conclude a treaty without entering the territory of Attica. The terms were, that Demosthenes and Hyperides should be given up, an aristocratical government formed, and a Macedonian garrison introduced into Munychia. This last condition was long opposed by Phocion, but Antipater was inflexible. Under these hard circumstances, all the efforts of Phocion (who, with other distinguished men, was then at the head of government), were directed to mitigate the heavy burdens of his country, and to turn his influence with the Macedonians to its advantage. Nevertheless, Phocion was accused of having acted against the good of his country, and of having betrayed it to the enemy. He was compelled, by clamors and accusations, to take refuge in Phocis, with Polysperchon, who soon after delivered him and other refugees to the Athenians, who demanded them. Polysperchon also sent a letter to the city, acknowledging them to be guilty of treachery. Their trial took place before the assembly of the people. Phocion, with several of his friends, was condemned to death unheard. His calmness continued unshaken. "Tell my son," said he to a friend, who asked if he had any commission for him, "to forget that the Athenians have been unjust to me." When many had drank the fatal draught, it was observed, that there was not enough remaining for the rest, and the officer who administered it refused to procure more without pay. Phocion requested a friend to pay him, and said, jestingly, "It is not even allowed us to die gratis in Athens." His body was thrown, unburied, beyond the limits of Athens, but his friends carried it to Eleusis, and burnt it in the house of a Megarensian woman. The Athenians became sensible of their injustice: they procured his remains, buried them at the public expense, erected a monument to his memory, and punished his accusers.

Phocis; a district of Greece, bounded north by Thessaly, east by Locris and Bœotia, south by the bay of Corinth, and west by Doris and the country of the Ozolian Locrians. The principal rivers were the Cephissus and Plistus, and the principal mountain Parnassus. Phocis was the country of the Hellenes. Parnassus, son of Neptune, built Delphi, before the flood of Deucalion, and gave his name to the mountain. After the destruction of Delphi by this flood, the surviving inhabitants built, on Parnassus, a city called Lycorea, where Deucalion reigned. Their posterity spread to the north, and conquered the Pelasgians, who dwelt there. At this time arose the name of *Hellenes.* Several small kingdoms were erected. Among others, Phocus, son of Ægeus, conducted thither an Æginetic colony, and from him the whole country took its name, *Phocis.* In later times the constitution was probably democratic. The Phocensians were an industrious people, and subsisted chiefly by agriculture. They were distinguished for their bravery, of which they gave a signal proof in the war with the Thessalians, and in the Persian and Peloponnesian wars, in which last they took part as allies of the Spartans. They were the cause of the sacred war, so destructive to Greece, and shared the general fate of their countrymen, after the battle of Chæronea, B. C. 338. (See *Greece.*)

Phœnicia, which is often considered as a part of Syria, was a narrow strip of land on the Mediterranean, extending from Aradus on the Eleuthrus to Tyre on the Leontes. Several towns on the coast, still farther south, within the limits of Palestine, may also have belonged to it; on which account, Ptolemy extended the southern limits to the Chorseus. This district, containing not more than 4238 square miles, was sandy, and was divided by the woody ridges of Lebanon, and Anti-Libanus. It contained, in its most flourishing times, a great number of considerable cities, but never formed a single state. The oldest city was called *Sidon*, now *Saida*, which was distinguished for its manufactures, especially of glass. Tyre, a colony of Sidon, was principally distinguished for its purple. This city received the name of *old Tyre* when the later celebrated Tyre was built on a neighboring island, which Alexander, during his siege of the city converted into a peninsula. Byblus (now Gebele, or Esbele) was celebrated for the worship of Adonis. Aco, afterwards Ptolemais, is now Acre; Berytus was afterwards distinguished for a law-school. These, and other cities, were at first colonies, dependent on the metropolis; but they became independent, and, in their flourishing period (B. C. 1000—600), formed a confederacy, at the head of which was Tyre. The original inhabitants of Phœnicia were probably nomads, who roamed about the shores of the Arabian and Persian gulfs: thence they went to Palestine, from which they retired into the country of their subsequent residence, long before the arrival of the Israelites, in consequence of the attacks of some powerful tribe. The maritime position of their new country, and its abundance of wood, led them to fishing and ship-building. Favored by circumstances, the Phœnicians became a sea-faring people, engaged sometimes in piracy, and sometimes in commerce. The imperfect accounts still existing prove that this was the case very early. Sidon is called by Moses the first born son of Canaan. The colonies which emigrated about the year 1500, in the time of Agenor, to Asia Minor, Crete, Lybia, and Greece, diffused various kinds of knowledge. Cadmus, his son, introduced into Greece the first notions of civil society and of writing. At the time of the settlement of the Jews in Palestine, about 1440, Sidon is called the *great city*. Homer mentions it as distinguished above all cities for its manufactures. As early as the twelfth century before Christ, the inhabitants of Sidon founded colonies in Africa. Utica was founded about 1170 B. C., and in Solomon's time, voyages to Tarshish, on the south-west coast of Spain, were common, from which we may have an idea of the extent of the Phœnician trade and commerce. Safe and neighboring harbors must, therefore, have been of importance to the Sidonians. On this account they built houses around a natural harbor, and erected a castle (Zor) on a rock. Numbers gradually settled here, and if, with Josephus and Trogus Pompeius, we believe that Tyre was built about 1184, then we must suppose that at this time it received a large colony, which converted the fortress into a city. In a short time, the little town grew so important, that, from 1000 to about 600 B. C., it was the head of the Phœnician confederacy, as Sidon had previously been. They had not power to carry on foreign wars, and they had no occasion for defence; they sought to extend their dominion by the peaceful colonization of uninhabited countries, and by alliances. We hear first of the Tyrians being engaged in wars on account of the attacks of the Asiatic conquerors, who were allured by their riches; these they carried on with mercenary troops. About the year 1000, Hiram, son of Abibal, concluded treaties of commerce and friendship with David and Solomon. Ithobal, king of Tyre and Sidon, about 900 B. C., was the father of Jezabel. He built several cities in Phœnicia, and peopled Auza, in Africa. To his son, Badozor, succeeded Mutgo (Mattinus or Mutgenus), father of Pygmalion, Barca, Dido and Anna. Dido, on account of a dispute with Pygmalion (B. C. 888), fled with Barca and Anna, and founded Carthage. (q. v., and *Dido*.) The neighboring island Cyprus must have been then under the dominion of the Tyrians, for Pygmalion here built Carpasia. Tyre must have subsequently maintained its superiority over the Phœnician cities, and probably abused it, for we find that the Cythoans of Cyprus revolted under the conduct of Eluleus (about B. C. 700), and called the Assyrians to their aid. Eluleus, however, again submitted, and Salmanassar concluded peace. On this, Sidon, and many other Tyrian cities, revolted and submitted to Salmanassar, whom they supplied with ships. But the hostile fleet of sixty vessels was destroyed by a Tyrian squadron containing only twelve, and the Assyrians were obliged, after five years, to raise the siege of Tyre. Thus Tyre remained 100 years superior to the Israelites. In the mean time, Sidon appears to have again risen, and to have become independent of Tyre. The alliance with Zedekiah against Nebuchadnezzar proved fatal to them. Sidon was destroyed; Tyre was taken, after a thirteen years' siege, and never recovered its former greatness. Most of the inhabitants fled with their treasures to the insular Tyre, which now became the centre of the commerce of the world. Itobal, who perished in this siege, was succeeded by Baal, who was probably a vassal of Babylon. During the seven years after his death, *suffetes* were chosen by the people. The government was afterwards again administered by kings subject to the Babylonian sovereignty. In the time of Cyrus (B. C. 555), Tyre, and probably all Phœnicia, fell under the Persian yoke. The kings of Tyre and Sidon, Mapenus and Tetramnestus, are mentioned as the most experienced seamen in the fleet of Xerxes, at the battle of Salamis, about B. C. 481. Sidon was at this time the richest city of Phœnicia, and was at the head of the insurrection against Artaxerxes, Mnemon and Ochus. Tennes, king of Sidon, assisted by the Greeks and Mentor, defeated (B. C. 361) the Persians; but Ochus, appearing with a formidable force, and the city, though strongly fortified, having fallen into his hands, by the treachery of Tennes, the Sidonians, in despair (B. C. 350), burned themselves and their property. Other Sidonians, who were absent at this time, rebuilt the city, on their return. When Alexander entered Phœnicia, after the battle of Issus, the Sidonians (B. C. 333) submitted without a struggle, and received for a king, instead of Strato, Abdolonymus, of the blood royal, but then a gardener. After a siege of seven months, the aid of the Carthaginians not having arrived, Tyre, at length, fell by treachery, and was reduced to ashes; part of the inhabitants were put to death, and part sold for slaves. Alexander rebuilt the city, but it never attained its former importance. It afterwards fell under the dominion of the Seleucidæ, as did Sidon under that of the Macedonians. About 65 B. C., the Romans took possession of it. From that time Phœnicia shared the fate of Syria. Tyre was an important rendezvous for the crusaders (1099). The sultan of Egypt, who took it in 1221, was soon driven out by the Franks, as were, also, the Tartars, in 1263, who had made themselves masters of it under Houlaku, together with the rest of Syria. It was finally subdued, in 1292, by the Egyptian sultan, since which it has shared the fate of the ruling country. The Phœnicians are more important when considered in reference to their commerce, navigation and manufactures, than in respect of the events of their history. Compelled by the unfruitfulness of their soil, they early betook themselves to the sea as pirates, and they gradually extended their voyages to the remotest countries. They bartered the productions of one country for those of another. They discovered the manufacture of glass, wool and purple, and executed all kinds of mechanical works. Their situation would lead the Phœnicians to trade particularly in the Mediterranean. Cyprus was their nearest landing-place; thence they extended their voyages to Greece and the Grecian islands. In Rhodes and Crete they established colonies. But when the Greeks themselves became a powerful and commercial people, the Phœnicians turned to the northern coasts of Africa. Here, as in Sicily and Sardinia, they founded colonies, by means of which they traded to the interior of Africa, and with which they always continued on good terms. But their trade to Spain was the most important. Here they found gold, iron, silver, tin and lead. The preserved fruits of the south were an important article of commerce. Gades (Cadiz), the most celebrated of their colonies, was the limit of the voyages in the Mediterranean, and the beginning of the more distant voyages in the Atlantic. They sailed northerly to the Cassiterides, Tin islands (the Scilly isles and Britain), and into the North sea, as far as the mouth of the Rhine. On the western coast of Lybia they must have visited and peopled the island of Madeira and the Fortunate islands (Canaries). Their trade to Ophir, on the Arabian gulf, and on the Persian gulf, perhaps as far as Ceylon, was less important and of shorter duration. Their circumnavigation of Africa is uncertain. They traded also in goods brought to them in caravans from the interior of Asia and Africa. For a long time their trade was entirely by barter; for the Numidians, not the Phœnicians, are considered to have stamped the first coins. They invented, or at least improved, ship-building. They used rudders and sails, and followed, by night, the course of the stars. The invention of letters and arithmetic has been attributed to them, and they probably had considerable astronomical and mechanical knowledge. On the other hand, poetry and the higher branches of mental cultivation were not pursued by them. Of their writings nothing is preserved to us. Their language belongs to the Canaanite branch of the Semitic family, and is little understood. Their religion was polytheism, with the worship of images, and human sacrifices. Their chief god was called by the Greeks *Cronos* (Saturn), by the Hebrews *Baal* or *Bel*, also *Adonis* (Lord), whose worship spread into Greece and Egypt (Osiris). Their principal goddess was Baaltis (Isis), or Astarte, or Astaroth, called by the Greeks *Aphrodite* (Venus). In Tyre, Melcarth (Hercules) was worshipped as a local deity, and his worship extended thence to other countries. The Phœnicians likewise worshipped the Cabiri. The character of this commercial people was not very high among the ancients.—For further information respecting Phœnicia, see Heeren's works (eleventh volume, 1824).

Phœnix; a Greek coin, lately introduced, and equal to the sixth part of a dollar.

Phœnix; a wonderful Egyptian bird, about the size of an eagle, with plumage partly red, and partly golden. This bird is said to come from Arabia to Egypt, every 500 years, at the death of his parent, bringing the body with him, embalmed in myrrh, to the temple of the sun, where he buries it. According to others, when he finds himself near his end, he prepares a nest of myrrh, and precious herbs, in which he burns himself: but from his ashes he revives in the freshness of youth. From late mythological researches, it is conjectured that the phœnix is a symbol of a period of 500 years, of which the conclusion was celebrated by a solemn sacrifice, in which the figure of a bird was burnt. His restoring his youth signifies that the new springs from the old. Every thing which more than sixty authors have related of this bird—Strabo, Lucian, Pliny, Plutarch, Herodotus, and others, and all the researches of the French and Italians —may be found in Ant. Métral's work *Le Phénix, ou l'Oiseau du Soleil* (Paris, 1824).

Phonetic (from φωνέω, I speak); a term applied to written characters which represent sounds, as *a*, *b*, in contradistinction to ideographic characters, which express ideas; e. g. the Chinese signs of a hand and a skin, to signify *tanner*.—(For further information on this subject, see the articles *Hieroglyphics*, *Chinese Language*, and *Writing*; see also *Philology*, and *Palenque*.)

Phonology. (See *Philology*.)

Phorcus, or **Phorcys**; son of Pontus and Terra, or, according to others, of Neptune and the nymph Thesea, was the father of many sea-monsters; for instance, the Gorgons, and the Hesperian dragon; according to some, also of Scylla and

Thoosa, whom his sister Ceto bore to him.

Phosphorescence is the property which certain bodies possess of becoming luminous without undergoing combustion, as when we rub or heat them, or in consequence of the action of the living principle or of decomposition. Two pieces of quartz emit light on being rubbed together. Light is seen in breaking lumps of sugar. A variety of blende (sulphuret of zinc), on being scratched with a knife, emits a fine yellow light. In the year 1663, Mr. Boyle observed, that the diamond, when slightly heated, rubbed, or compressed, emitted a light almost equal to that of the glow-worm. The most complete account we possess of the phosphorescence of minerals is that furnished by doctor Brewster. He obtained his results by placing fragments of the bodies examined upon a thick mass of iron heated a little below redness, or introducing them into a pistol barrel similarly heated. The following table presents some of his results :—

Name of the Minerals.	*Color of the Minerals*	*Color of the Light.*
Fluor spar,	pink,	green.
———,	purple,	bluish.
———,	bluish white,	blue.
———,	white,	white sparks.
Calcareous spar,	transparent,	yellowish.
Apatite,	pink,	yellow.
Arragonite,	dirty white.	reddish yellow.
Harmotome,	colorless,	do.
Topaz,	white & bluish,	bluish.
Rubellite,	reddish,	scarlet.
Petalite,	reddish white,	bright blue.
Anatase,	dark brown,	reddish yellow.

The phosphorescence of anatase is entirely different from that of the other minerals. It appears suddenly like a flame, and is soon over. Certain varieties of fluor require no more heat than that of the hand to occasion the emission of light. The phosphoric light of minerals has the same properties as the direct light of the sun. The foregoing are instances in which it was not necessary to expose the bodies to the light previous to their exhibiting phosphorescence. Certain artificial compounds emit light in consequence of the action of extraneous light. The most powerful of these is the compound called *Canton's phosphorus*. It is formed by mixing three parts of calcined oyster-shells in powder, with one of flowers of sulphur, and ramming the mixture into a crucible, and igniting it for half an hour. The bright parts will, on exposure to the sun-beam, or to the common day-light, or to an electrical explosion, acquire the property of shining in the dark, so as to illuminate the dial of a watch, and make its figures legible. It will, indeed, after a while, cease to shine; but if we keep the powder in a well corked phial, a new exposure to the sun's light will restore the phosphorescent quality. When the electric discharge is transmitted along the surfaces of certain bodies, or a little above them, a somewhat durable phosphorescence is produced. Sulphate of barytes gives a bright green light, acetate of potash a brilliant green light, and rock crystal, a red and then white light. Temperature has a marked effect on the emission of light by these bodies. When they are shining, the luminous appearance ceases if they are exposed to the cold of a freezing mixture. It becomes more vivid by applying heat; and if it has ceased, it may be renewed by applying a stronger heat, so that a piece of any solar phosphorus, which has apparently lost its power, may by heat be again made to shine. Some of the phosphorescent bodies, just mentioned, after their luminousness is over, upon partially heated iron, yield on fusion a very vivid light. Lime is the substance possessing this property in the most remarkable degree. If a piece of calcareous spar is placed on charcoal before the compound blow-pipe, it emits a light so vivid and white that it can scarcely be looked upon. The following fluids have been found by doctor Brewster to be phosphorescent when poured into a cup of heated iron: Albumen (white of an egg) diluted in water, isinglass in solution, saliva, soap and water, solution of rhubarb, do. of common salt, do. of nitre, tallow (the phosphorescence of which may be observed when a candle is extinguished in a dark room), alcohol, oil of dill-seeds and oil of olives. Several cryptogamous plants have been observed to be luminous in the dark. The *Rhizomorpha phosphoreus* found in the mines of Hesse exhibits light when the extremities of the plant are broken. Other species of Rhizomorpha have also appeared phosphorescent to the miners. But marine animals are the most remarkable for this property; and to them is now fairly attributed the once mysterious phosphorescence of the ocean. This phenomenon is occasionally observable every where at sea; but it is in warmer regions and more southern latitudes, that it attains its greatest degree of brilliancy and beauty. In these parts it has been thus described by a scientific observer :—"At one time, the evening serene and delightful, a pleasant breeze just filling the sails, and the bow of the vessel throwing the water to each side, as it gracefully parts the yielding waves; all round the ship, far as the eye can reach, may be seen innumerable bright spots of light rising to the surface, and again disappearing, like a host of small stars dancing and sparkling on the bosom of the sea. At another time, the night dark and lowering, a fresh breeze urging the ship rapidly onwards through her pathless track, upon looking over the stern, in addition to the smaller specks just now mentioned, large globes of living fire may be seen wheeling and dancing in the smooth water in the wake of the rudder; now, at a great depth shining through the water, then rising rapidly to the surface, they may be seen, as they reach the top of the wave, flashing a bright spark of light, sufficient almost to dazzle the eyes of the beholder; and now, again, they may be traced floating majestically along, till they gradually disappear in the darkness of the water in the distance. At other times, again, when light rain is falling, or perhaps previously to the rain coming on, when a light nimbose cloud is overspreading the sky, upon the water being agitated by the ship passing through it, or curled up by a rope towing overboard in a bight, a beautiful, general luminousness is diffused all around, bright enough to illuminate the whole ship's side, and the lower large sails which may be set at the time; and it is no unusual occurrence to have this appearance so bright, that a person with little difficulty, and near the surface of the water, might be enabled to read." That all this light is afforded by little animalcules there cannot be the smallest room for doubt; for they have been caught in the very act of giving out the luminous appearance, and in vast numbers; and in every instance where the water has been properly examined when luminous, they have been seen in great quantities; while, on the other hand, when the water has not been luminous, they have not been visible. They have been described and figured by naturalists, who have studied them by the aid of powerful microscopes; and they are found to belong to the mollusca, the vermes, the crustacea and the zoöphytes. Light is also emitted from certain land insects, as from the lightning-bug and the glow-worm. A kind of phosphorescence, still different, is that observed in decomposing animal and vegetable matter. It appears during the putrefaction of fishes, especially, but has been observed also from the flesh of quadrupeds. Our woods during autumn frequently exhibit a high degree of luminousness in light rotten wood.

PHOSPHORUS was discovered by Brandt in 1669, though there are some reasons for believing that the alchemists of an earlier period were also acquainted with this substance. Brandt kept his process secret for some time. Kunckel, another German chemist, knowing only that Brandt had procured it from urine, entered on the investigation, and succeeded in discovering the process. Mr. Boyle, in England, also discovered it, and Godfrey Hankwitz, a man who was taught the process by Boyle, sold it for many years, at a high price, in London. In 1769, Ghau, a pupil of Scheele of Sweden, having discovered that phosphate of lime is the basis of bones, invented the process now generally followed. It is as follows:—100 parts of burnt bones in powder are to be mixed with 40 parts of sulphuric acid, and they are to be suffered to remain in contact for two days, the mixture being frequently stirred. The whole is then to be poured upon a filtre of cloth, and the liquor that passes through is to be added to a nitrous solution of lead; a white powder will be formed; this must be mixed with about one fifth of its weight of charcoal powder, and exposed to a strong red heat in a porcelain retort, the beak of which is plunged in water; much gaseous matter will come over, some of which will inflame spontaneously, and at length a substance will drop out of the neck of the retort, and congeal under the water, which is phosphorus. It may be purified by melting it in water, and passing it under water through chamois leather. It is semitransparent, and of a white, or yellowish-white color; it is as soft as wax; insoluble in water; specific gravity, 1.77. It melts at the temperature of 90° Fahr., and boils at 550°. When phosphorus is exposed to air at common temperatures, it emits a white smoke, which appears luminous in the dark. This depends upon its combining with oxygen, and forming an acid which unites with the aqueous vapor in the atmosphere, and they fall down in the fluid form. When phosphorus is heated to about 148°, it takes fire, and burns with intense brilliancy, throwing off dense white smoke, which is a strong acid, that soon becomes liquid by taking moisture from the air. It forms three acids by combining with oxygen. When it is inflamed in oxygen gas over mercury, and the white substance produced strongly heated, the oxygen being in excess, for every grain of phosphorus burnt, four and a half cubic inches of oxygen are absorbed.

The substance so procured is *phosphoric acid.* It becomes fluid at a red heat, and is not volatile, even at a white heat. Its taste is intensely acid. It acts upon and corrodes glass, and unites with alkalies and oxides. When phosphorus is heated in highly rarefied air, three products result; one is phosphoric acid, another is an easily volatile substance, appearing as a white powder, and the third is a red solid, requiring a heat above that of boiling water for its fusion. The second substance is soluble in water, and the solution is possessed of acid properties. It contains less oxygen than the phosphoric acid; for it burns and becomes fixed when heated in the air. It is *phosphorous acid.* The third substance requires less oxygen than phosphorus to convert it into phosphoric acid, and is regarded as an *oxide of phosphorus.* Phosphorus burns in chlorine gas, and unites with it in two proportions, the one of which contains twice as much chlorine as the other. When these are thrown into water, the chloride is resolved into muriatic and phosphorous acids, the bi-chloride into muriatic and phosphoric acids. Iodine also acts upon phosphorus at common temperatures. It forms with sulphur compounds more inflammable than pure phosphorus. It is soluble in alcohol, ether, and the expressed or volatile oils, especially by the aid of a little heat. The solutions in oils are luminous when exposed to the air. The compounds formed by phosphoric acid with the alkalies, earths and metallic oxides, are called the *phosphates.* Phosphates of alkalies are partially decomposed by heating with charcoal: *phosphate of ammonia* is decomposed by heat alone. The phosphates of the alkaline earths are not decomposed when heated with charcoal. Before the blow-pipe both alkaline and earthy phosphates melt into a vitreous, transparent globule. They are soluble in nitric acid without effervescence, and precipitate from that solution by lime-water or ammonia. Sulphuric acid decomposes them, and separates the phosphoric acid. The alkaline phosphates are soluble and crystallizable; the earthy ones are insoluble. The *phosphites* are distinguished from the phosphates by appearing luminous when heated before the blow-pipe, and by affording, on distillation, a small quantity of phosphorus. They become phosphates on exposure to the air for a little time. *Phosphureted hydrogen.* This interesting compound of phosphorus and hydrogen exists in the elastic form, and is obtained by combining phosphorus with any substance which, by a resulting affinity, shall enable it to decompose water. Thus, if one part of phosphorus is heated with ten or twelve of a solution of potash, the alkali exerts this operation,—the water present is decomposed, its oxygen combines with one proportion of the phosphorus, forming phosphoric acid, which unites with the potash; the hydrogen of the decomposed water combines with another portion of the phosphorus, producing phosphureted hydrogen. Or lime may be substituted for potash. The distinguishing peculiarity of this gas is its high inflammability, in consequence of which it takes fire whenever it is presented to the atmosphere. It cannot with safety be mixed with air in any quantity, from the violent detonation that would ensue, and it is therefore allowed to burn as it escapes from the water, in which the beak of the retort containing the materials producing it is immersed. The products of its combustion, as it escapes from the retort into the air, are phosphorous acid and watery vapor, which present at their formation a very singular appearance: the bubble of gas, as it escapes and inflames, expands into a horizontal ring of light white vapor, which enlarges in diameter as it rises until it breaks; this is phosphorous acid, wafted by the aqueous vapor, and it owes this corona form to the eccentric impulse of the explosion. It is supposed that many of those lights which are said to have been seen at night around burying-grounds, and other places, when animal and vegetable substances are undergoing decomposition, arise, in part at least, from phosphureted hydrogen. *Bihydruret of phosphorus* is a second compound of hydrogen with phosphorus, obtained when solid phosphorous acid is heated out of contact with the air: the oxygen of the water of crystallization present converts part of the phosphorous acid into the phosphoric, while the hydrogen, uniting with a small proportion of phosphorus, forms this gas. It is not spontaneously inflammable, but detonates when mixed with atmospheric air and heated to 212°. Phosphorus is employed in the arts for the construction of fire-matches, and for the preparation of phosphoric acid. Its use in medicine has been attempted, but its violence is too great to be employed with safety. The phosphates are employed as fluxes, and in the composition of pastes for the imitation of gems.

Photius; a patriarch of Constantinople, celebrated, about the middle of the ninth century, for the brilliancy of his talents and the depth of his erudition. He was a native of Constantinople, and originally distinguished himself by his learning and ability as a layman; but, on the expulsion of the patriarch Ignatius, by Bardas, was consecrated to the vacant see, 858. During the succeeding ten years, a controversy was carried on with much acrimony between him and the bishop of Rome, each party excommunicating and anathematizing the other; the consequence of which was the complete separation of the eastern and western churches. Bardas, his patron, being at length taken off by his nephew and associate in the empire, Michael the Third, that prince was in his turn assassinated by Basilius, the Macedonian, who then ascended the throne in 866. But Photius, denouncing him for the murder, was in the following year removed, to make way for the restoration of his old enemy Ignatius, and was forced to retire into banishment. On the death of that patriarch in 878, Photius, by a flattering exposition of a forged document respecting the genealogy of the emperor, acquired his favor, and, being restored, maintained himself in the patriarchal chair during the remainder of that reign; but was at length accused, on insufficient grounds, of conspiring against the new sovereign, Leo the Philosopher, who sent him, in 886, into confinement in an Armenian monastery, where he died in 891. This learned and intriguing prelate was the author of a Bibliotheca, containing an examination of 280 writers; the best edition is that of Bekker, a French translation from which was announced in 1831, in six volumes, octavo; of the *Nomocanon*, a digest of the ecclesiastical laws, acts of councils, &c., under fourteen heads; a Lexicon of the Greek Language; and numerous epistles. Of the *Bibliotheca* there are two other editions, that of Vienna, 1601, and that of Rouen, folio, 1653. Of the Lexicon, printed at Leipsic in 1808 (edited by Hermann), there is a more accurate copy in manuscript at Cambridge. The Letters appeared in one folio volume, in 1651.

Photometer; an instrument intended to indicate the different quantities of light, as in a cloudy or bright day, or between bodies illuminated in different degrees. In Leslie's photometer, the essential part is a glass tube, like a reversed siphon, whose two branches should be equal in height, and terminated by balls of equal diameter: one of the balls is of black enamel, and the other of common glass, into which is put some liquid. The motion of the liquor, which is sulphuric acid, tinged red with carmine, is measured by means of a graduation; the zero is situated towards the top of the branch that is terminated by the enamelled ball. The use of this instrument is founded upon the principle that, when the light is absorbed by a body, it produces a heat proportional to the quantity of absorption. When the instrument is exposed to the solar rays, those rays that are absorbed by the dark color heat the interior air, which causes the liquor to descend, at first with rapidity, in the corresponding branch. But, as a part of the heat which had introduced itself by means of the absorption is dissipated by the radiation, and as the difference between the quantity of heat lost and that of the heat acquired goes on diminishing, there will be a point where, these two quantities having become equal, the instrument will be stationary, and the intensity of the incident light is then estimated by the number of degrees which the liquor has run over.

Phrat. (See *Euphrates*.)

Phrenology (from φρην, mind, and λογος, science); also called *craniology*; the doctrine first systematically exhibited by doctor Gall, of the formation and functions of the nervous system, and particularly of that portion of it which is enclosed in the skull, and composes what is called the *brain*: hence the name *craniology*, from κρανιον, the skull, and λογος, science. To give another definition, "phrenology treats of the faculties of the human mind, and of the organs by means of which they manifest themselves; but it does not enable us to predict actions." The origin of this branch of physiology has been touched upon in the account of its author. (See *Gall*.) He published his observations in a work entitled *Anatomie et Physiologie du Système nerveux en général et du Cerveau en particulier* (Paris, 1801 et seq., 4to.), and illustrated them by numerous engravings in folio. The chief points of his doctrine are the following: The brain is that organ of the body by which the mind of man exerts its activity. It is, however, not active in all its parts in every act of thinking; but, as every sense, every organ of motion, and, in general, every function of the body, has a particular nerve, or set of nerves, as its instrument, so every operation of the mind essentially different from the others has a separate part of the brain for its organ, which is indispensable to it. The strength and size of the nerve are in proportion to the power of action belonging to this organ. The nerve of the trunk of the elephant has the strength of a child's arm. Man's brain is more complex than that of any other member of the whole animal creation. It not only unites all those organs which are found singly in the brains of other animals, but has also others which are not found in them. The skulls of men exhibit great varieties, as well in the quantity of the brain as in the elevation of certain points; and observation teaches that the better sort of heads are distinguished, if not by a greater circumference of the whole skull, yet by the prominence of peculiar elevations, that is, by a greater mass of brain at those points. In youth, the period of developement, and the time of the formation of the dispositions, the whole brain has a tendency towards expansion. If the upper part of a young skull is taken off, the brain forces itself out, and cannot be pressed back into the same space by replacing the part of the skull: with an old skull, precisely the contrary is observable. The functions of certain parts of the brain are different from each other, and independent of each other, and those parts of the skull which cover them are distinguished by peculiar forms. The brain is a convolution of organs. The point of union of all the nerves must be considered to be where the spinal marrow and the brain join in the neck at a spot, by pressure on which any animal possessing a brain is easily killed. Part of the nervous substance descends as spinal marrow, gives out nerves to all the organs of the body, and is distributed at last entirely into nervous ramifications. The second part ascends into the cavity of the skull, gives out branches to the cerebellum, and diffuses itself in the forms of rays, through the whole mass of the cerebrum, or rather composes it, leaving, however, in four places empty spaces (the ventricles). The variety of functions is expressed by an equally great variety in form and color. The organs of the brain are double. The whole mass of brain may be divided into two equal hemispheres, and singleness takes place only where those organs are supposed to exist, which seem to be destined to unite all the activities in a common consciousness: hence, if an organ in one part is deficient, the other part may still be active; so that the function belonging to them may still be performed; as one kidney may be wanting without a total suppression of the secretion of urine. Those organs which are found in all animals provided with a brain (such as have the most immediate connexion with the maintenance of the vital energy), are situated towards the base of the skull; but, when the brain becomes nobler by the addition of organs of more elevated faculties, these additional organs are found towards the upper and outer parts of the skull. In a similar way, the increase of some parts of the brain shows itself by prominence beyond the others. The skull itself is in a passive state, that is, its form is determined by the surface of the brain, and does not press on the brain, if in a healthy or natural condition; for the brain exists even in the fœtus, before the formation of the skull. It is then only surrounded by the hard membrane called the *dura mater*, which has to form and to nourish the skull. The bones of the skull consist, in adults, of two laminæ, between which lies a marrowy *diploe*. Nevertheless, the two laminæ are every where parallel with each other, except at a few points. Accurate and continued observation and comparison of men, says the phrenologist, have shown that particular elevations of the skull allow us to infer a great developement of the dispositions or faculties belonging to the organs under these protuberances, but that, where all the functions are developed harmoniously (as in Wieland's head), the skull forms no abrupt elevations, but an even arch. The observation of men in different situations, and with peculiar dispositions and faculties, and of the skulls of such individuals, anatomico-physiological investigations of the brain, and particularly comparative anatomy, with particular reference to the disposition or faculty by which particular animals are distinguished, and to the peculiar character of their skulls; pathological observations of persons suffering in the brain or the mind, as of cretins, idiots, insane persons, or persons whose brains have been injured by external violence, experiments with animals (not unfrequently cruel ones), by wounding or destroying certain parts of the brain, &c., furnish the facts on which phrenology rests. By means of such observations, Gall considered that he had found the parts of the brain belonging to several faculties and dispositions. These, as far as they can be discovered by observation of the exterior of the skull, are, of course, only such as are situated towards the surface of the brain: a number of others, situated deeper, and towards the centre, may, indeed, be conjectured at present, but can only be ascertained by continued study. Whatever may be the opinion respecting phrenology, it is certain that the observations of Gall, and other phrenologists, are highly remarkable; and Gall's idea is not, as some have asserted, immoral, and founded on materialism. From times immemorial, it has been known that men are born, not only with different faculties of intellect, but also with different moral dispositions, which is true both of single individuals, and of whole nations, and the phrenologist only strives to find the organic cause of these differences, which is as innocent as to ascribe peculiar dispositions to the influence of climate. The phrenologist does not say that these dispositions cannot be overcome; but who does not know that moral efforts are much more difficult to some persons than to others? The individual organs, according to the classification and nomenclature of doctor Spurzheim's New Physiognomical System, published in 1815, are as follows. (See *Spurzheim.*) A faculty is admitted as primitive if it exists in one kind of animal and not in another; varies in the two sexes of the same species; is not proportionate to the other faculties of the same individual; does not manifest itself simultaneously with the other faculties (appears and disappears earlier or later in life than other faculties); may act, or rest singly; may singly preserve its proper state of health or disease. The organs are divided into those of the *propensities*, the *sentiments*, and the *intellect.* Of the *propensities*, nine are enumerated: 1. amativeness, situated in the cerebellum, and indicated, during life, by the thickness of the neck at the occipital bone. With new-born children, the cerebellum is the least developed of all the cerebral parts, and is to the brain as 1 : 13, 15 or 20, and in adults, as 1 : 6, 7 or 8. 2. *Philoprogenitiveness*, situated immediately above the middle part of the cerebellum, and corresponding to the protuberance of the occiput. It produces the instinctive love of offspring, and, in general, love of children, and is with females larger than with men. 3. *Concentrativeness*, immediately above the last, and below self-esteem. It was first called, by Spurzheim, *inhabitativeness*, as it was found in persons and animals much attached to one place; but now it is believed that its function is to maintain two or more powers in simultaneous and combined activity. This organ is stated by Combe as probable.* 4. *Adhesiveness*, on each side of concentrativeness, just above the lambdoidal suture. It produces an instinctive tendency to attach one's self to certain objects, animate and inanimate. 5. *Combativeness*, at the inferior and mastoid angle of the parietal bone. It produces courage, and propensity to attack. 6. *Destructiveness*, immediately above, and extending a little backwards and forwards from the external opening of the ear, and corresponding to the squamous plate of the temporal bone. 7. *Constructiveness*, at that part of the frontal bone immediately above the spheno-temporal suture. 8. *Acquisitiveness*, at the anterior inferior angle of the parietal bone (Spurzheim first called it *covetiveness*). It produces the tendency to acquire, or the desire to possess in general. The great idea of property is founded on it. 9. *Secretiveness*, at the inferior edge of the parietal bones, immediately above *destructiveness*, or in the middle of the lateral portion of the brain. This faculty produces instinctive tendency to conceal spontaneous thoughts, emotions, &c., from outward expression, until the understanding shall have decided on their propriety. The nine organs of sentiments are enumerated thus: *a.* sentiments common to man and the lower animals: 10. *Self-esteem*, at the vertex, or top of the head, a little above the posterior or sagittal angle of the parietal bones. If modified by other organs, it is the source of great good. The lower animals, such as the turkey-cock, peacock, horse, &c., manifest feelings resembling pride or self-esteem. 11. *Love of approbation*, on each side of that of *self-esteem*, and commencing about half an inch from the lambdoidal suture. 12. *Cautiousness*, near the middle of each parietal bone, where the ossification of the bone generally commences. 13. *Benevolence*, at the upper part of the frontal bone, in the coronal aspect, and immediately before the fontanel. *b.* Sentiments proper to man. 14. *Veneration*, at the middle of the coronal aspect of the brain, at the bregma or fontanel of anatomists. 15. *Hope*, on each side of that *veneration*, and extending under part of the frontal and part of the parietal bones. 16. *Ideality*, nearly along the lower edge of the temporal ridge of the frontal bone, producing delight in the beau ideal. *Wonder*, immediately above *ideality*. The function of this part of the brain was not ascertained when the other organs were numbered, and it therefore was left unmarked in the busts and plates. It produces the tendency to believe in presentiments, phantoms, &c.; probable. 17. *Conscientiousness*, on the posterior and lateral parts of the coronal surface of the brain, upwards from *cautiousness*, and backwards from *hope*. 18. *Firmness*, at the posterior part of the coronal surface of the head, close upon the middle line. The intellectual faculties are, genus I, external senses: *feeling of touch* (extending over most parts of the body), *taste*, *smell*, *hearing*, *sight*. All these senses convey the impressions to the various organs, whose province it is to form ideas of such qualities. Genus II, *knowing faculties*. 19. *Individuality*, at the middle of the lower part of the forehead, gives the desire and ability to know facts and things without a view to their application. 20. *Form*, indicated by the width between the eyes. Its function is to judge of form. 21. *Size*. The frontal sinus throws difficulties in the way of observing this organ, and Combe states it as only probable. It gives an intuitive facility of estimating size. 22. *Weight*, or *resistance*. The frontal sinus, when very large, extends to this organ, and renders its ascertainment difficult. It lies nearest to the organ of *size*, and is also stated as probable. It gives facility in judging of weight or resistance. 23. *Coloring*, under the middle of the arch of the eye-brows, is connected with a great natural power of perceiving colors. 24. *Locality*. The frontal sinus occurs occasionally, but not generally at the seat of locality, at the lower part of the forehead, over the inner end of the eye-brow. It is connected with a great memory for places, and a power of judging of the capabilities of ground. 25. *Order*,[*] connected with the love of order. 26. *Time*, connected with the power of conceiving time, and of remembering circumstances united only by chronological succession; probable. 27. *Number*, connected with a great talent for calculating. 28. *Tune* gives the perception of melody. A great developement of this organ enlarges the lateral part of the forehead; but its form varies according to the direction and form of the convolutions. 29. *Language* gives the power of acquiring and using words. A large developement of this organ is indicated by the prominence and depression of the eyes, this appearance being produced by convolutions of the brain, situated in the posterior and transverse part of the upper orbitary plate, pressing the latter, and with it the eyes more or less forward, downward and outward. Genus III. *Reflecting faculties*. 30. *Comparison*, an eminence of the form of a reversed pyramid, in the upper and middle portion of the frontal bone, gives the power of perceiving resemblances. 31. *Causality*, between *comparison* and the following, furnishes the idea of *causation*. 32. *Wit*; prominent and rounded anterior-superior-lateral parts of the forehead. 33. *Imitation*, at the superior-anterior part of the forehead. We refer the general reader for a popular treatise on phrenology to Elements of Phrenology, by George Combe, which has gone through several editions, and has been reprinted in the U. States. There exists in England a phrenological society, who publish a phrenological journal.

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* The organs not mentioned as probable are considered as established.

Phrygians appears to have been the name of the primitive inhabitants of Asia Minor, since not only the Trojans, but also the Mysians and Lydians, were so called. Under the Persian dominion, Phrygia was the largest and most central province of Asia Minor. At a later period it was divided into Greater and Lesser Phrygia and Phrygia Epictetus, the north-western part of Phrygia proper. The principal cities were Apamea, Laodicea and Colossæ. The inhabitants of this fertile region were early civilized, and paid much attention to grazing and tillage. The history of Phrygia is altogether connected with mythological events. Several of its kings are mentioned of the names of *Gordius* and *Midas*. (q. v.) On the death of Adrastus (B. C. 560), the royal family of Phrygia became extinct, and the kingdom became a province of Lydia. It afterwards formed a part of the Persian, and still later of the Roman empire. In the music of the ancients, the *Phrygian mode* was of a martial character. (See *Mode*, and *Music*.)

Phryne; one of the most celebrated courtesans of Greece, born at Thespiæ, in Bœotia. She arrived at Athens in a humble condition, but soon began to acquire wealth by trafficking in her charms. She became the mistress of Praxiteles (q. v.) and of Hyperides; the former of whom immortalized her beauty by his art; the latter obtained her acquittal when she had been accused of atheism, by exposing her charms to the aged judges of the Heliæa. This event was decisive of her success. She henceforth veiled her beauties, and sold her favors only at an enormous price. At Eleusis, she went naked into the sea, before the assembled multitude, but this was probably to renew the impression of her charms. (See *Anadyomene*.) Phryne, or, according to some, Lais, once wagered that she could melt the stern and rigid Xenocrates; but her temptations proved unsuccessful, and she declared that he was not a man, but a statue. Even in her old age, she was not without admirers, as it was esteemed an honor for any one to be able to boast that he had enjoyed her favors.

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[*] Phrenological casts are at present so common, that it is thought more convenient to refer to them than to describe here the particular situation of all the organs.

Phryxus. (See *Argonauts*, *Athamas*, and *Helle*.)

Phtha. (See *Hieroglyphics*, p. 318.)

Phthiotis. (See *Thessaly*.)

Phthisis. (See *Pulmonary Consumption*.)

Physical Astronomy. (See *Astronomy*.)

Physical Geography, or the **Natural History of the Earth**, is that branch of geography which treats of the surface of the earth, of the atmosphere which surrounds it, of the substances which compose it, and of the organized bodies which it produces or supports. (See *Geography*.) Physical geography does not, however, enter into the minute details of natural science; it gives a general view of phenomena and their mutual relations, and leaves to the more rigorous sciences the classification of the substances of which they treat, borrowing from each its results, and connecting them into one whole. The figure of the earth and its relations to the other parts of the universe are determined by mathematical geography; physical geography points out its natural divisions into land and water, continents, seas, oceans, &c., and treats of the external configuration of mountains, valleys, coasts, &c. (See *Earth*, and the separate articles.) Having examined the surface, we attempt to penetrate the interior, and determine the structure and composition of the solid parts of the earth, its strata, caverns, veins, &c., the rocks or aggregate substances of which it is formed, their distribution, properties, age, &c. (see *Geology*); we study the remains of its past inhabitants, and the proofs of the violent revolutions which it has undergone (see *Organic Remains*); and seek for the causes of those revolutions. (See *Earthquake*, *Volcano*.) We next examine the simple substances of which the earth is composed (see *Mineralogy*), and their various combinations (see *Metals*, *Earths*, *Salts*), from which we obtain so many contributions to our comfort, health or luxury. If we then turn to the fluid parts of the globe, hydrography points out its divisions into lakes, rivers, seas, oceans (*see the articles*), determines the different natural qualities of water, its temperature, chemical properties, &c. (see *Mineral Waters*), and the nature, extent and causes of those great fluctuations, which it regularly or irregularly undergoes. (See *Tides*, *Currents*.) The fluid which surrounds the globe may next be examined (see *Meteorology*), its composition determined, and the curious phenomena of which it is the theatre, and the movements to which it is subject, be studied. (See *Atmosphere*, *Rain*, *Hail*, *Snow*, *Magnet*, *Electricity*, *Winds*, &c.) After concluding our examination of inorganic nature, by researches into the local temperature of the atmosphere (see *Climate*, *Temperature*, *Zones*), we may next consider the earth as the residence of organized living beings, which adorn its surface, and feed upon its inexhaustible resources. Vegetables, from the abundance with which they are produced, and from their intimate connexion with the surface of the globe, first attract attention; botany examines, in detail, the treasures of the vegetable world, while physical geography marks its general relations and traces the influence of climate, temperature, soil, atmosphere, &c., upon the progress and extent of vegetation, and the geographical distribution of plants. (See *Plants*.) Rising above the lowest form of organic to animal life, we search the air, the land and the sea, following the motions of insects, reptiles, birds, fish and beasts, and fix the boundaries within which they are confined, or the spot of their origin and the progress of their migrations. (See *Animals*, *Zoölogy*, &c.) Man, in his physical capacity, his animal organization, his variety of complexion, stature, conformation and mode of life, the proportions of the ages, sexes, deaths and births, with the influence of heat and cold, moisture and drought, local habitation and climate, upon his body and mind, is the last and highest subject of physical geography. (See *Man*, *Longevity*, *Physiology*, &c.) Considered as a moral, social, political and religious being, man in organized societies is the subject of political geography. It is not to be denied that physical geography is yet in its infancy. But an inconsiderable part of the surface of the globe has yet been examined; the seas still conceal their treasures from us, and the bosom of the earth has been but partially and superficially opened to us.—See Bergmann's *Physical Geography* (Swedish, 2 vols., 8vo.), the geographical works of Humboldt, Malte-Brun's *System of Geography* (vol. i).

Physics. (See *Natural Philosophy*.)

Physiocratic or Agricultural System, in political economy. Francis Quesnoy, physician to Louis XV, had observed the very depressed state of agriculture in France, whilst travelling with the king and ascribed it to the mercantile system (q. v.) introduced under Colbert, which favored the industry of the cities. Quesnoy published his *Tableau Économique avec son Explication* (1758), and developed his system in his *La Physiocratie, ou Constitution Naturelle du Gouvernement le plus avantageux au Genre Humain* (Paris, 1767, improved; Yverdun, 1768, 6 vols.), and a whole school, called the *physiocratic*, soon sprung up. It was not, however, until the reign of Louis XVI, under the minister Turgot, that the followers of the system came into office. Their authority again sunk; but, in the revolution, they had, for several years, a decided preponderance in the convention. Joseph II of Austria, and Leopold of Tuscany, his brother, were friendly to the system, but did not allow the perfect freedom of trade which it recommended. The principles of the physiocratic system are, 1. The earth is the only source of all national wealth; and only those who use or increase the natural powers operating in the vegetable and animal kingdom, as farmers, fishermen, herdsmen, miners, add to the amount of actual wealth. All other laborers, mechanics, manufacturers, merchants, produce nothing which can increase the public wealth; they only change the form of the articles produced by the former classes, and their wages will always be paid by the surplus of raw products, which the farmer saves from his own consumption. The merchant only promotes the exchange of goods. Still less is it in the power of public officers and men in similar employments to increase the elements of wealth. 2. All members of the community, therefore, are divided into productive and unproductive. To the latter class belong scholars, artists, mechanics, merchants, &c., because all of them are to be supported by the productions of the earth, without having assisted directly in producing them. What they save from the wages received from the mass of the natural products, in various forms, contributes, indeed, to national wealth, and they become, thereby, a useful class of citizens, indirectly increasing wealth. It is only by their means, moreover, that the agriculturist is enabled to devote himself exclusively to the culture of the earth. 3. From this it follows that the unrestricted exercise of all honest occupations is necessary to the wealth of both classes. The system inculcates freedom in regard to foreign commerce, as well as to the mechanic arts, considering it a matter of indifference whether the products of a country are consumed by natives or by foreigners. 4. As, according to this system, all wealth is derived from the soil, the only subject taxed should be the net produce of the soil. The untenableness of this system, without replying to it in detail, rests chiefly in the misconception of nature and its products. The fire of the steam-engine is as much a productive natural power as that producing grain, and the plough as much a machine as the steam-engine.

Physiognomy (from φύσις, nature, and νόμος, law, rule) is the name given to the countenance of man, considered as an index of his general character, and also to the science which treats of the means of judging of character from the countenance. This is the general acceptation of the term; but there seems no very good reason why the science of physiognomy should not be considered as extending to a man's whole appearance. Whatever be thought of the possibility of laying down strict rules for such judgments, it is a fact of every day's occurrence, that we are, almost without reflection on our part, impressed favorably or unfavorably, in regard to the temper and talents of others, by the expression of their countenances. The poetry of early ages contains descriptions of the features of heroes, corresponding to the character of the individual; and, in ordinary life, every person who takes a servant is influenced by the expression of his countenance. The existence, therefore, of a permanent external expression of the inward man, in some degree, cannot be denied; but that there exist exceptions, is a matter of course. The great question is, how far we can reduce our experience to certain rules. As the face is that part of animals in which the noblest organs are united, by which they put themselves in contact with the world, and, for various reasons, shows most of their characteristic traits, it has been made the particular object of study by the physiognomist; and comparisons have been drawn between the face of man and that of animals. Bapt. della Porta (who died in 1615) made such comparisons the basis of his physiognomical investigations, and had the heads of animals compared to human faces represented. Tischbein, a German painter, has since carried out the same idea much more completely, and doctor Gall has also made such comparative representations for the illustration of phrenology. (See *Gall.*) A great part of the art of painting and sculpture is founded on physiognomy. As the expression of the face depends very much upon the formation of the fore part of the skull, physiognomy is illustrated by craniology.* Among the chief points in physiognomy, Kant, in his anthropology, reckons, 1. the general formation of the face, particularly in the profile, which is interesting, both in respect to the physiognomy of individuals and of nations, as Blumenbach's investigations prove; 2. the features of the face; 3. the motions of the face, as far as they have become habitual; also the walk, &c. Kant and others think they can show why physiognomy can never be elevated to a science. It is, however, a subject of great interest, but the student must be on his guard against a general application of the rules which experience seems to have furnished him. This was the reason why Lavater's system lasted but a short time, though he has collected valuable materials. (See *Lavater*.) The Dominican Campanella, who died in 1639, was a physiognomist. J. Cross published, in 1817, an Attempt to establish Physiognomy upon scientific Principles (Glasgow, 1817); and Spurzheim, the Physiognomical System.

Physiography. (See *Mineralogy*, vol. viii, p. 509.)

Physiology (from φύσις, nature, in every sense, and λογος, science). This word, first used, as it appears, by Aristotle, would signify, according to its etymology, the science which treats of all the phenomena of nature, the whole universe, and thus would comprise natural philosophy as well as natural history; but the term has been subjected to some restrictions, and is used, sometimes, for the science which treats of all the phenomena of living bodies, and thus becomes synonymous with *biology*; sometimes for the science which treats of animal life, and then is synonymous with *zoönomy*, or *dynamology*; and sometimes for the science which treats of the phenomena of life in man, and then it corresponds to one of the significations of *anthropology*. The most scientific use of the word is that which applies it to the phenomena of life in general, as all the phenomena of life, animal or vegetable, are intimately connected with each other. The science would then include vegetable physiology, animal physiology, and comparative physiology, which corresponds to comparative anatomy, and examines the analogies and differences presented by the organic activity of the two classes of beings. Physiology has been further divided into general and special, the former analysing the phenomena of life in an abstract manner, without making the application to particular species, whilst the latter examines the mechanism and the results of life in certain species. Physiology, finally, has been treated under the subdivisions of hygienic, pathologic and therapeutic physiology. As long as these divisions serve simply to assist the student, without conveying wrong ideas as to the science and the subject which it treats, viz. life, so various in its manifestations, yet one and the same throughout all nature, they may be useful. As man stands highest in the scale of beings which we have an opportunity to observe, he is the most interesting subject of physiology, both because animal life is most developed in him, and because his animal life is intimately connected with his intellectual and moral life, for, whatever may be the belief respecting the state of the soul before or after our existence on this earth, it is certain that during the time of our earthly life, the soul and body are, in more than one respect, intimately united. Under this view several German philosophers have treated physiology, and attempted to draw from it illustrations for the higher anthropology. Without going into that subject at present, we shall give here a brief outline of the German mode of treating physiology, which is probably less familiar to our readers than that of France and England. The human frame consists of a multiplicity of organs, which are constantly in a state of mutual excitement and mutual restraint. The chain of causes and effects is endless, yet observation has discovered certain series and orders, called *systems*. Thus we have the systems of reproduction, irritability and sensibility. (q. v.) The province of the reproductive system is to preserve and unfold the organization. Matter is in uninterrupted change: it undergoes a constant union and separation. This is as true of the animal frame as of the lower forms of matter. There is a constant succession of states, and the whole life of the organization consists, as it were, of innumerable smaller circles of life, beginning with that of the simple substances, each of which runs through certain changes, and then begins anew, and proceeding thence to the higher organs and systems. This constant change in the animal frame requires a constant introduction of new matter into the system, and a constant separation of that matter which has completed its brief tour of duty, and must be thrown off as useless. The new matter received has to undergo a series of changes to adapt it to the purposes of animal life. These changes are effected by means of a number of organs, whose form, construction and activity correspond to their destination. These are the organs of ingestion and digestion, the mouth, throat, stomach and intestines, the absorbing vessels of the intestines, which in their course form glands, then canals, ending at last in one canal. (See *Chyle*, *Digestion*, and *Dyspepsia*.) The received matter becomes purer and purer, that is, fitter for animal life, and eventually becomes blood (q. v.), which change is effected in the lungs (q. v.), from which the blood collects in the left cavities of the heart. (See *Heart* for an account of the circulation of the blood.) The blood is a fluid endowed with life, and is spread all over the organization, diffusing new matter and life in innumerable currents. The arterial system penetrates every organ, and every organ gives to the matter thus received its peculiar character. Part of this blood, in the shape of coagulated fibres, assumes the first organic form, the cellular texture (an animal crystallization, as it were), attaches itself to the already existing matter of the same kind, in order to assist the latter, if it is yet in the process of formation, or to supply the place of that whose virtue is exhausted, and, by further processes, gives rise to the various other parts of the human body, as the cellular texture, the various membranes, glands, hairs, bones, cartilage, muscles, arteries, the capillary system, nerves, brain, &c. These single parts, by various combinations, form the compound organs, whose functions vary with their composition. Another part of the blood is destined to be changed into various fluids; this is effected by the function of secretion, for which several organs are destined. To these belong the secretion of the saliva in the salivary glands, of the gastric juice in the stomach, of the gall in the liver, milk in the breasts, of the mucus in the mucous membranes, &c. After the various forms of organic matter have run through their short circle of life, they lose their character of animal life and activity, change their peculiar form, are dissolved, absorbed in proper canals, and thrown out. This is done by the absorbing lymphatic vessels, by the kidneys and urinary passage, the skin, &c. The system of irritability (q. v.) is composed of the fibre formed out of the blood, and endowed with a higher life, and consists of the muscular fibre, which possesses the faculty of shortening itself by contraction. Aggregations of these fibres form a muscle. Some of these are hollow muscles, for the reception and transmission of fluids, as the heart and the muscular membranes. The others are connected with the system of bones, and serve for voluntary motion. (See *Muscles*.) The system of sensibility consists of the matter in the highest stage of life, and forms the whole system of the nerves. (See *Nerves*, and *Brain*.) These systems are closely connected, and are combined in each organ; thus we find every where cellular texture, membrane, vessels, &c., and nerves which diffuse a higher life throughout the organs, and produce, by their general connexion, a harmony in the functions of all the organs, which, if undisturbed, is called *health*. To the series which gives rise to this harmony of the functions belong also the activities of the soul, in so far as the material organization influences them, or the soul influences the material organization. For, though the life of the soul is superior to the life of the body,—the latter only following unchangeable laws of nature, the former being guided by reason and volition,—yet the close union of both, and their mutual operation, cannot be denied. The material organization affects the soul by the cerebral system and nerves, the soul receiving ideas of outward things through the senses (see *Nerves*); and though the cerebral system belongs peculiarly to the soul, yet it is nourished and maintained by the same means as the whole animal organization; and this circumstance, and perhaps the connexion of the nerves of the systems of sensibility and reproduction, give rise to what we call instincts and impulses connected with the physical wants. Further, there seems to exist a constant yet silent influence of the material organization on the higher nervous system and the brain, owing the support of these organs by the blood, and to the connexion in which all organs are kept through the nerves; and these circumstances appear to explain the causes of the various temperaments and the change in our dispositions. The soul, on the other hand, operates upon the bodily organization by many voluntary acts, which affect the organic life, by the restraint of the appetites, and by the activity which its own operations necessarily excite in its organ, the brain; and, finally, by the direct influence of certain passions and emotions, on particular parts of the frame. All these points are minutely treated in physiology. The history of physiology is intimately connected with that of medicine. It began with scanty materials and hypotheses. Hippocrates had but a very imperfect knowledge of the human organization, and very limited views of the origin of life. Galen, possessing a better knowledge of anatomy, composed a better system of physiology. From him originated the division of the functions into vital, animal and natural functions, which has maintained itself down to our time. After the middle ages had gone by, the more thorough study of anatomy led to a better system of physiology. Harvey's discovery of the circulation of the blood was a great step, but it induced his successors to attempt to explain life by mere mechanical and hydraulic principles. Stahl (q. v.) considered the soul as the cause of life and its phenomena; but Haller made an entirely new epoch, by the theory of the irritability of the fibre, which was made the basis of many systems; even Brown's theory of life, as arising from the irritability of the organization, and the influence of external things, is to be deduced from this source. The progress of chemistry and philosophy gave rise to another mode of treating physiology, the former by analysing the simple substances of the body, the latter by the faithful investigation of what is within and what without the limits of the reasoning faculty, thereby banishing a number of untenable theories.

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* Physiognomy and phrenology, in a certain degree, always have existed and will exist. Though our rules for judging of men from their appearance may often fail, we still continue to trust in them. We cannot help considering it strange if a sulky-looking man is found to be kind, and a stupid-looking man to be sagacious. We find in the autobiographical letters of the philologer Jerome Wolf (who died 1580), a curious story, that the physician attending his father on his death-bed, looking at the forehead of young Jerome for some time, consoled his father by the assurance that his son would be, at some future time, a capable man, though he might then appear awkward and dull.—*H. Wolfii de Vitæ suæ Ratione*, &c., communicated in Raumer's *Historisches Taschenbuch*.

Phytology (from φυτὸν, plant, and λογος, science); a word not unfrequently used for *botany* by the Germans of late, they considering it more correspondent than *botany* to the denominations of the kindred sciences, zoölogy and mineralogy, and better adapted to the more elevated character which the science has received of late, since the whole nature of plants has been more thoroughly studied than formerly. (See *Plants*.)

Pia Mater, in anatomy; a thin membrane immediately investing the brain. (q.v.)

Piano (*Italian*); soft, slow; used in music in contradistinction to *forte*. *Pianissimo*; the superlative of *piano*.

Piano-Forte; a musical stringed instrument, the strings of which are extended over bridges rising on the sounding-board, and are made to vibrate by means of small, covered hammers, which are put in motion by keys, and where a continued sound is not contemplated, their sound is dampened immediately after the touch of the keys by means of leathern dampers. The piano has superseded the harpsichord, principally owing to its greater strength, fulness and duration of tone. The strength of the tones has also been increased by increasing the number of the strings for each tone. There are usually three strings for each tone. The hammers usually strike the strings from below; but, of late, instruments have been made in Vienna, called *Kapotasto*, in which the hammers strike the strings from above, and thereby produce a stronger tone. A change or prolongation of tone is produced by means of pedals: only a few, however, are at present used. Formerly, the clavichord and the spinnet supplied the place of the piano-forte; and all three instruments possess the advantage that a single player on the same can produce a complete harmony, and the most rapid and difficult series of tones can be executed by means of a simple mechanism, on which account these instruments greatly facilitate the study of harmony. To the harpsichord the piano-forte is inferior in this single particular, that, in the former instrument, the touch has a great influence on the character of the tones, while, in the case of the piano-forte, they are in a manner prepared beforehand. This instrument is usually tabular in shape (these are commonly of a comparatively weak tone), or spinnet-formed. Those in the shape of a long spinnet (grand piano-fortes) are used as concert instruments, and have the greatest compass and strength. The grand piano-forte is one of the noblest and most elegant musical instruments. The common compass of piano-fortes at present is six octaves rising from the lowest *F*. There are also instruments of this class in an upright form; for example, *Dietanaklasis*, which, however, are less in use. The piano-forte was invented by Christian Gottlieb Schröder of Hohenstein, in Saxony, born in the beginning of the eighteenth century (about 1717, in Dresden). It has been gradually improved, till it has become one of the most important instruments in all musical entertainments In strength and firmness, the English piano-fortes excel all others. They are, however, comparatively difficult to use, and are very expensive.

Piarists; fathers of the pious schools (*scholarum piarum*); the members of a religious order, who, in addition to the three usual monastic vows, took also a fourth, namely, to devote themselves to the gratuitous instruction of youth. (See *Monastic Vows*, and *Orders*, *Religious*.) This order was instituted at Rome, in the beginning of the seventeenth century, by Joseph Casalanza (died 1648), a Spanish nobleman, and confirmed by the pope in 1621. In 1690, it was rewarded for its useful labors, by the most important privileges of the mendicant orders. The piarists are, like the Jesuits, a secular order, subject to rules. They also resemble the Jesuits in their costume, and in their devotion to the service of the church and to education, and have been the rivals of that order from the time of their institution. They soon spread themselves through the Catholic countries, particularly in the Austrian dominions, and became numerous and powerful, without subjecting themselves to the charge of ambitious views, and without meddling in political matters, as the Jesuits did. Many gymnasia and schools in Hungary and Poland are still under their direction. In Bohemia, Moravia, Silesia and Austria, they have some respectable colleges, and their services in the cause of education have undeniably been great.

Piaster. (See *Coin*, division *Spain* and *Turkey*.) The Turkish piaster varies much in value.

Piazza, in architecture, is a portico, or covered walk, supported by arches; and all walks, with porticoes around them, are piazzas.

Piazzi, Giuseppe, director-general of the observatories at Naples and Palermo, was born at Ponte, in the Valteline, in 1746; in 1764, entered the order of the Theatines at Milan, and studied at Milan, Turin and Rome, under Tiraboschi, Leseur and Beccaria. In 1770, he was appointed professor of mathematics at the new university in Malta, on the abolition of which he returned to Italy, and, in 1780, became professor of the higher mathematics at Palermo. Having induced the viceroy to establish an observatory there, Piazzi went to England and France to purchase the necessary instruments. The observatory was completed in 1789, and is described in Piazzi's *Della Specola astronomica de' Regi studj di Palermo*, 1792—94. His first observations were published in 1792. He soon after began his catalogue of stars, and dedicated the first, containing 6784 stars, to the institute at Paris. January 1, 1801, Piazzi discovered the planet Ceres, in commemoration of which the king of Naples wished to strike a gold medal in his honor; but Piazzi preferred that the money should be applied to the purchase of instruments for the observatory. In 1814, he completed his second catalogue, containing 7646 stars. He had also been occupied in the reformation of the system of weights and measures in Sicily. The observation of comets he always considered as useless. In 1817, the king called him to Naples to examine the plan of the new observatory there; and his last years were chiefly devoted to the subject of public education in Sicily. He died July 22, 1826. His *Lezioni elementari di Astronomia* were published at Palermo in 1817.

Pib-Corn, or Hornpipe; a Welsh instrument, consisting of a wooden pipe, with holes at the sides, and a horn at each end, the one to collect the wind blown into it by the mouth, and the other to convey the sound as modulated by the performer. This instrument is so common in Wales, that the shepherds' boys amuse themselves with it while tending their flocks.

Picard, Louis Benoit, born at Paris, in 1769, early began to write for the stage with success. The friendship of Andrieux, who assisted him with his advice, was serviceable to him, and he soon became an actor, making his debut at the *Théâtre Louvois* (Odéon), where his dramas were also represented with much applause. In 1801, he became the manager of the theatre, continuing to perform and write at the same time. He soon after (1806) withdrew from the boards, was admitted to the French academy, and intrusted by government with the direction of the opera. While at the head of the opera, he ceased writing, but, in 1816, resumed the direction of the Odéon, and again began to write. He died in 1828. Picard, on account of his skilful delineation of character, was called by the French *Le petit Molière*. He was the author of more than seventy larger and smaller pieces, besides several romances. Among the latter are *Le Gil Blas de la Révolution*; *L'honnête Homme*, &c.

Picards. (See *Adamites*.)

Picardy; formerly a province of France, in the northern part of the kingdom, lying on the British channel, to the north-west of Normandy, and south of

Artois. (See *France*, and *Department*.) It was for some time in possession of the English crown.

Piccini, Niccolò, born at Bari, in the kingdom of Naples, in 1728, was designed by his father, a musician, for the church. But the young Piccini soon displayed such a decided taste for music, that he was placed at the Conservatorio di Santo Onofrio, at the head of which was the celebrated Leo. After spending twelve years there, he left the conservatory, thoroughly grounded in the science of music, and animated with a glowing imagination, which wanted only an opportunity to show itself. The prince of Vintimille mentioned him to the director of the Florentine theatre, and Piccini set the opera *Le Donne dispetose*, which was performed with applause. He soon after composed *Le Gelosie*, and *Il curioso del proprio Danno*. The latter was performed with applause during four successive years. His composition of Zenobia (1756) displayed his genius in the serious opera. In 1758, he was invited to Rome to set *Alessandro nell' Indie*; and in 1760, appeared his celebrated *Cecchina*, or *La buona Figliuola*, which had an unexampled run in Italy. The next year, his *Olimpiade*, a serious opera, had the same success. In this piece, the duet was first presented free from pedantry and technicality, in the new musical form, which has since been universally adopted. Piccini continued to compose for the theatres of Rome and Naples for fifteen years, during which time he enjoyed the undisputed supremacy in the public favor; but, after the appearance of Anfossi (q. v.), one of Piccini's operas failed at Rome, and, in consequence of the mortification which this occasioned him, he fell sick, and, after his recovery, determined to devote himself solely to the theatres in Naples. In 1776, he accepted an invitation, on very favorable terms, from the French court, and went to Paris. At that time, besides numerous oratorios, cantatas, &c., he had composed 133 operas. Being entirely ignorant of the French language, he received instruction from Marmontel, and, with his assistance, brought out the Roland of Quinault, which, notwithstanding the opposition of Gluck and his friends, was successful. Although Gluck and Piccini were personally reconciled, yet the war between their respective admirers continued (see *Gluck*); and, in order to compare their merits, the two rivals composed the same subject, Iphigenia in Tauris: in this contest, Gluck had the advantage. In 1783, Piccini produced his *Dido*, which is considered his *chef d'œuvre*. He had been appointed director of the royal singing school in 1782, but the revolution deprived him of his appointments, and he returned to Naples in 1791, where the king granted him a pension, and employed him on various occasions; but, having imprudently expressed revolutionary sentiments, he was exposed to much hard treatment, and finally returned to France, where he died in 1800.

Piccolomini; a distinguished family, originally of Italy. The most celebrated members are, 1. *Æneas Sylvius Bartholomæus*, who, under the name of *Pius II*, ascended the papal throne in 1458. He was one of the most learned popes, wrote the life of the emperor Frederic III, and a history of Bohemia. He was secretary to the council of Basle, and defended the rights of the councils against the popes; but, when he was made pope, he recanted all that he had said against the extent of the papal power. His favorite plan of uniting the princes of Europe in a war against the Turks was frustrated by his death, in 1464. 2. *Octavio Piccolomini* was born in 1599, became one of the distinguished generals in the thirty years' war, was a favorite of Wallenstein, who intrusted him with a knowledge of his projects, when he purposed to attack the emperor; but Piccolomini betrayed him, and was one of those who were charged to take Wallenstein alive or dead. He was made prince of the empire, but disgraced his military renown by his cruelty. He died in 1656, in Vienna.

Pichegru, Charles, general of the French republic, born in 1761, at Arbois, in Franche-Comté, of poor parents, was educated at that place in a monastery of the Minims (but without entering the order, as has been falsely asserted), and afterwards studied at the college of Brienne, where he distinguished himself so much by his progress in mathematical science, that the recitations of his class were intrusted to him while yet a scholar. Bonaparte was at that time his pupil at Brienne. At an early age, Pichegru enlisted as a common soldier in the first regiment of artillery, and was soon made a sergeant. Towards the end of the American war, his regiment was ordered to America, and he thus had opportunity of becoming acquainted with the land and sea service. After his return, he was appointed sergeant-major, and company-adjutant; and on the outbreak of the revolution, he embraced its principles. He was president of the political club in Besançon, when a battalion of national guards, without subordination, discipline or commander, arriving in the city, the Besançon club proposed Pichegru as a suitable person to command them. His first care was to establish order and discipline—a task which he accomplished with energy and skill, and then led his battalion to the army of the Rhine. Here he distinguished himself so favorably, that, in 1792, he entered the general staff, and became colonel, general of brigade, and, in 1793, general of division. Meanwhile the reign of terror had commenced in France. Custine, Houchard, Biron and others perished under the guillotine. The suspicions of those in power at Paris rendered it more dangerous, at that time, to be at the head of an army, than to storm a hostile battery; but Pichegru undertook the command of the forces, disorganized by the loss of the Weissemburg lines, restored discipline, and led the disheartened troops to a series of brilliant victories. To resist the numerous and better disciplined troops of the enemy, supported by an excellent cavalry, he introduced the system of sharp-shooting, and at the same time, by his skilful use of the mounted artillery, succeeded in paralyzing the tactics of the enemy. Hoche commanded at that time the right wing of the army in Alsace. In connexion with this general, and nominally under his command (although, in fact, he only followed Pichegru's plan of operation, of which he subsequently assumed the whole merit), Pichegru stormed the lines of Hagenau, Dec. 23, 1793, relieved Landau, and took Lauterburg. These successes gained him the highest commendation in Paris, even from Robespierre and Collot d'Herbois. On the dismissal of Hoche, in 1794, he was appointed to command the army of the north, which disasters had reduced to a state of disorganization. Here he also restored order and discipline. After failing in the attack (made by command of the committee of safety) on the enemy's centre, under the prince of Cobourg, Pichegru, at his own peril, pressed forward into West Flanders, and, by thus turning the enemy's flank, gained (April 26—29) the brilliant victories of Courtray, Montcassel and Menin, which forced Clerfayt to a hasty retreat. May 18, he defeated the united forces of prince Cobourg and York, between Menin and Courtray, and, to draw Clerfayt from his strong position at Thiel, he made a movement towards Ypres, near which he defeated the Austrian general, June 10 and 13. All West Flanders fell into the hands of the French, and, Jourdan having soon after gained the victory of Fleurus, Pichegru passed the Scheldt, and thus cut off Clerfayt from the English army, took Bruges, Ostend, Ghent and Oudenarde, and besieged or blockaded Nieuport, Sluys, Condé, Valenciennes and Quesnoy. He then advanced to Mechlin, defeated on the 16th and 17th of July the combined English and Dutch, took Antwerp, drove (in September) the English beyond the Meuse, and, after a siege of three weeks, captured Hertogenbosch (see *Bois le Duc*), then deemed impregnable. October 19, he again defeated the English at Puhlach, blockaded Grave, and occupied Hulst, Axel, Sas de Gand and Nimeguen. The cruel commands of the convention, to spare no Englishman, and to put to the sword the garrisons of Condé, Valenciennes, Landrecies and Quesnoy, unless they immediately surrendered, were evaded by Pichegru; and on January 2, 1795, with an army destitute of almost every thing but courage, he crossed the Waal and Meuse on the ice, took Grave, Bommel island, and fort St. Andrew, by storm, and invested Breda. Thus was Holland conquered, the Dutch army dispersed, the English obliged to embark; the hereditary stadtholder fled to England, and Pichegru entered Dortrecht and Amsterdam in triumph. The convention now conferred on him the chief command of the army of the Rhine and Moselle; but he retained at the same time the command of the army of the north, under Moreau, and of the army of the Meuse, under Jourdan. In April, 1795, he was recalled, to take command of the capital, where the terrorists were making their last efforts to recover their power. Having suppressed the insurrection of the fauxbourgs, for which he was called in the convention "the savior of the country," he returned to the army of the Rhine, where, however, his career, hitherto so brilliant, now took another turn. He entered into negotiations with the prince Condé, through Fauche-Borel (q. v.), to coöperate in the restoration of the Bourbons. He was promised offices of honor, domains and rents. But the secret was soon revealed to the French government. Pichegru's conduct as general had already excited suspicion, for, instead of improving his advantages over the enemy, he had retreated when he should have advanced. But Montgaillard, an agent in the negotiations of the Bourbons with the general, in whose hands was the correspondence on the subject, delivered up the papers to the directory, who, too weak at the moment to bring the general to an account, recalled him from the command, in 1796, under the pretence of appointing him ambassador to Sweden. Pichegru declined the post of ambassador, but was blind enough not to perceive the storm which threatened him, and, instead of saving himself while it was still time, he retired to the abbey of Bellevaux, near Arbois, which he had purchased, where he lived in narrow circumstances, till March, 1797, when the electors of his department (the Upper Saone) chose him representative in the legislative body. Here he was chosen president of the council of the five hundred; but he did not abandon his secret projects. On the contrary, he appeared at the head of the Clichy party, and incurred suspicion by his propositions in relation to the new organization of the national guards of Paris, evidently intended to overthrow the republican party. The directory, in concert with the council of elders, secretly sent for troops from the Italian army under Augereau, by whose aid, Sept. 4, 1797 (18 Fructidor, year V), the plots of the royalists were baffled, and Pichegru, with his accomplices, was arrested and sent to the Temple. The directory published the correspondence of Pichegru with the emigrant Bourbons, particularly with Condé, part of which had been obtained through Montgaillard, and part found by the army of the Rhine under Moreau, in the baggage of general Klingin, and, with twenty of his accomplices, he was condemned to deportation to Cayenne. The prisoners were conveyed by way of Blois to Rochefort, where they embarked. Having arrived at Cayenne, they were transported to the unhealthy wilderness of Sinamari, where most of them died of the marsh fever. Pichegru and seven others succeeded, after remaining there eight months, in escaping to Paramaribo, the capital of the Dutch colony of Surinam, in a light boat. From this place they went to England, where Pichegru, now an avowed adherent of the Bourbons, met with a favorable reception, and was ordered to join the Austrian and Russian army, under Korsakoff. But as Korsakoff, to whom Pichegru, before the battle of Zurich, had given some useful advice, which was neglected, was defeated, Pichegru returned to England, where he was often consulted both by the ministers and by the French princes. The latter, as is well known, flattered themselves that Bonaparte would play the part of general Monk (q. v.), and restore the exiles to the throne; but as the grounds for this hope disappeared, it was resolved to put the first consul out of the way; and in the execution of this plan, Pichegru and Georges Cadoudal, chief of the Chouans, and inventor of the infernal machine, with whom Pichegru had become acquainted in London, were employed. Having been landed on the French coast by captain Wright, in January, 1804, with several of the old Vendean leaders, the conspirators repaired in disguise to Paris, hoping to find there a party favorable to their views, and to engage Moreau (q. v.) in their plans. But the police (under Fouché) discovered the plot, and Georges was suddenly arrested. Pichegru escaped his pursuers several days, but was finally betrayed by a merchant, with whom he had taken refuge, and arrested Feb. 29, 1804. He was confined in the Temple, and a process commenced against him; but he was found one morning (April 6) strangled in prison. An attempt was made to fix on the first consul the stigma of having caused the unhappy man to be tortured and then strangled; but this would have been a most wanton act of cruelty; the ordinary legal process would have resulted in his condemnation to death, as it was proved, by his own confession, that it had been the intention of himself and his accomplices to make away with the existing head of the state. It is more probable that, in despair at the failure of a plot equally foolish and wicked, he committed suicide by strangling himself with the silk handkerchief, which was found about his neck. His body was publicly exposed the day after his death, and no traces of torture could be perceived. His private character is deserving of much praise. Disinterested in a high degree, he declined the gifts that were frequently proffered him, and his humanity to prisoners was exhibited on more than one occasion. When he was transported to Cayenne, he was so poor that his friends were obliged to sell his effects, to procure him money for his voyage. Montgaillard published a *Mémoire concernant la Trahison de Pichegru dans les Années* 3, 4 et 5 (1795, 1796. and 1797), which contains many disclosures with respect to his negotiations with the Bourbons.

Pichincha, the Battle of, was fought near the celebrated volcano of this name, May 24, 1822, between the Colombians under general Sucré, and the Spaniards, assembled for the defence of Quito. Sucré succeeded in gaining the vicinity of the capital, and turning the left flank of the Spanish army stationed near it, by marching over the frozen summits of Cotopaxi, and sleeping on the mountains. In consequence of this and several successive daring movements of Sucré, the royalists found it necessary to hazard a battle, and sustained a total defeat. Quito and the Spanish forces capitulated the next day, and the patriots thus became possessed of the entire presidency, with all the Spanish magazines and stores; and the road to Peru was left open to Bolivar.

Pichler, or **Pickler**, John Anthony, and John (father and son); two artists, celebrated for their skill in gem-sculpture. The father was born at Brixen, in Tyrol, in 1700, and died at Rome, in 1779, with the reputation of having restored this art to a high degree of perfection, which had sunk entirely since the times of the ancients. His son was born at Naples, in 1734, and excelled his father. His Hercules struggling with the Nemæan Lion, his Leander and his Achilles, are master-pieces, acknowledged as such by all connoisseurs, and esteemed very nearly equal to the most perfect works of antiquity. Pichler lived in Rome, where he saw the emperor Joseph II, who raised him to the rank of nobility, and wished him to live in Vienna with a decent salary; but Pichler refused this offer, as well as several invitations to go to England. He died at Rome, in 1791, where J. G. de' Rossi published a biography, subsequently translated by Boulard and Millin into French, and published in the *Magazin Encyclopédique*, with notes by Dufourny. A bust of Pichler, made by Chr. Heveston, was placed in the Pantheon.

Pick-Axe; an axe composed of a wooden handle, and an iron head, which has two slightly curved prongs, situated on each side of the handle, and forming one piece. The pick-axe is employed in loosening the soil, in picking out pavement, &c.

Pickens, Andrew, a distinguished revolutionary officer, was born Sept. 13, 1739, in Bucks county, Pennsylvania. Before his arrival at the age of manhood, his family emigrated to South Carolina. In the French war, which terminated in 1763, he made his first campaigns, having, amongst other services, accompanied, in 1761, the expedition under lieutenant-colonel Grant, against the Cherokees, as a volunteer, in conjunction with Marion and Moultrie. At the commencement of the revolution, he was appointed a captain of militia, and throughout the war displayed the utmost courage, skill and zeal, and rose by regular and rapid degrees to the rank of brigadier-general. During the period when South Carolina was overrun by the enemy, and the American cause in that quarter wore the gloomiest aspect, he was one of those who indefatigably kept up the spirit of resistance. His principal services were—in an expedition which he commanded in 1781, against the Cherokees, whom he completely subdued in a few days, with an inconsiderable force, at Kettle creek, where he defeated a large body of tories under colonel Boyd, with half their force, and secured the internal peace of the country for a considerable time, by thus breaking the strength of that party—and at the battle of Cowpens, where he commanded the militia, whom (what had never before been effected with militia) he rallied after they had been broken and compelled to retreat, and brought a second time into action. He contributed much to the final surrender of the enemy, and congress voted him a sword. At the battle of the Eutaw springs, he commanded, with Marion, the militia of the two Carolinas, but in the early part of the action, he received a severe wound in his breast by a musket ball; which was prevented, however, from being mortal by the ball striking the buckle of his sword. After the conclusion of peace he was employed in various civil capacities. He was one of the commissioners who accomplished the treaty of Hopewell with the Cherokees, by which that portion of the state now called Pendleton and Greenville was acquired. Soon afterwards he settled at Hopewell. He was a member of the legislature, and afterwards of the convention which formed the state constitution. Under the new constitution, he again occupied a seat in the legislature until 1794, when he was sent to congress. In that year also, when the militia was first organized conformably to the act of congress, he was appointed one of the two major-generals, but resigned his commission after a few years. He declined a reelection to congress, and again became a member of the legislature, in which he continued until about 1801. In that year he withdrew from public life. In all the treaties which had been made previously with the southern Indians, he had been employed by the U. States as a commissioner, and on one occasion president Washington had requested his attendance at Philadelphia, to consult with him on the practicability and best means of civil izing that people. He continued in retirement until 1812, when he accepted a seat in the legislature, the country being then involved in a war with England. He was also solicited to serve as governor, but he declined. He died October 11, 1817, after a long life, in which he had enjoyed almost uninterrupted health, in consequence of the natural excellence of his constitution, combined with early and constant temperance and activity. His character was marked by simplicity, decision and prudence. His taciturnity was remarkable. Throughout his whole career, he was distinguished for a scrupulous performance of every duty.

Pickering, Timothy, colonel, was born in Salem (Mass.), July 17, 1745, of a respectable family. He was graduated at Harvard college in 1763, and, after the usual course of professional studies, was admitted to the practice of the law. When the dissensions between the colonies and the mother country commenced, he soon became the champion and leader of the whigs of the quarter where he lived. He was a member of all the committees of inspection and correspondence, and bore the entire burthen of writing. The address which, in 1774, the inhabitants of Salem, in full town-meeting, voted to governor Gage on the occasion of the Boston port-bill, proceeded from his pen. A part of it, disclaiming any wish, on the part of the inhabitants of Salem, to profit by the closing of the port of Boston, is quoted by doctor Ramsay, in his History of the American Revolution. In April, 1775, on receiving intelligence of the battle of Lexington, he marched, with the regiment of which he was at the time commander, to Charlestown, but had not an opportunity of coming to action. Before the close of the same year, when the provisional government was organizing, he was appointed one of the judges of the court of common pleas for Essex, his native county, and sole judge of the maritime court (which had cognizance of all prize causes) for the middle district, comprehending Boston, with Salem and the other ports in Essex. These offices he held until he accepted an appointment in the army. In 1777, he was named adjutant-general by Washington, and joined the army then at Middlebrook, New Jersey. He continued with the commander-in-chief until the American forces went into winter quarters at Valley Forge, having been present at the battles of Brandywine and Germantown. He then proceeded to discharge the duties of a member of the continental board of war, to which he had been elected by congress, then sitting at Yorktown (Penn.). In this station he remained until he was appointed to succeed general Greene in the office of quarter-master-general, which he retained during the residue of the war, and in which he contributed much to the surrender of Cornwallis at Yorktown. From 1790 to 1794, he was charged by president Washington with several negotiations with the Indian nations on our frontiers. In 1791, he was also made postmaster-general, and, in 1794, removed from that station to the secretariship of war, on the resignation of general Knox. In 1795, he was appointed secretary of state in the place of Mr. Randolph. From that office he was removed by president Adams, in May, 1800. At the end of the year 1801, he returned to Massachusetts. In 1803, the legislature of that state chose him a senator to congress for the residue of the term of Dwight Forster, Esq., who had resigned, and, in 1805, reëlected him to the same station for the term of six years. After its expiration in 1811, he was chosen by the legislature a member of the executive council; and, during the war of 1812, he was appointed a member of the board of war for the defence of the state. In 1814, he was sent to congress, and held his seat until March, 1817. He then finally retired to private life. His death took place January 29, 1829, in the eighty-fourth year of his age. In his manners, colonel Pickering was plain and unassuming. In public life, he was distinguished for energy, ability and disinterestedness; as a soldier, he was brave and patriotic; and his writings bear ample testimony to his talents and information. He was one of the leaders of the federal party in the U. States.

Pickets, in fortification; sharp stakes, about three feet long, sometimes shod with iron, used in laying out ground; but when used for pinning the fascines of a battery, they are from three to five feet long. In the artillery, pickets five or six feet long are used to pin the park lines; in the camp, they are used about six or eight inches long to fix the tent-cords, or five feet long in the cavalry camp to fasten the horses.

Pickle-Herring. (See *Harlequin.*)

Pico; one of the Azores, so called from a very high mountain, terminating, like Teneriffe, in a peak. (See *Azores.*)

Pico della Mirandola. (See *Mirandola.*)

Picquet. (See *Piquet.*)

Picromel, the characteristic principle of bile, and named from two Greek words, signifying *bitter* and *honey*, in allusion to its sharp, bitter and sugared taste. If sulphuric acid, diluted with five parts of water, be mixed with fresh bile, a yellow precipitate will fall. On heating the mixture, leaving it to repose, and decanting off the clear part, what remains is a compound of picromel and sulphuric acid. It is edulcorated with water, and digested with carbonate of barytes, the result of which is that the picromel is liberated and left dissolved in the water. On evaporating the water, the picromel is obtained in a solid state. It resembles inspissated bile. Its color is greenish-yellow. It affords no ammonia by its destructive distillation; hence the absence of nitrogen is inferred, and the peculiarity of picromel.

Picrotoxia (meaning a *bitter poison*) is the peculiar principle of *cocculus indicus*. When separated from the coloring matter and other substances with which it exists in the berries of this plant, it presents itself in four-sided crystals, of a white color and an intensely bitter taste. Alcohol dissolves one third of its weight of picrotoxia. It is soluble in 25 times its weight of water. Pure sulphuric ether dissolves two fifths of its weight. It is soluble, likewise, in other acids, and may therefore be regarded as a vegeto-alkaline principle. M. Casaseca thinks that it is not a vegetable alkali, but merely a peculiar bitter vegetable principle.

Pictet, Marcus Augustus, a naturalist, born at Geneva, in 1752, was the pupil and friend of the celebrated Saussure, whom he succeeded as professor of philosophy, in 1786. Pictet, after the incorporation of Geneva with the French republic, was one of the fifteen appointed to manage the public debt and the fund for the support of the Protestant church. In 1803, he became secretary of the tribunate, as a member of which he exerted himself particularly in extending the freedom of trade, and in improving and laying out roads and canals. In 1807, on the abolition of that body, Napoleon appointed him one of the fifteen general inspectors of the imperial university. In connexion with his brother Charles, and Maurice, mayor of Geneva, he established, in 1796, the *Bibliothèque Britannique*, a periodical which, since 1816, has been issued under the name of *Bibliothèque Universelle*. In 1803, Pictet travelled in the British isles, and, after his return, published his *Voyage de trois Mois en Angleterre, en Ecosse et en Irlande*. He was the author of several other works, chiefly on physical, mathematical and agricultural subjects.

Pictou; a thriving commercial town in the northern part of Nova Scotia. The first house was built in 1790. In 1827, it contained 1439 inhabitants. It is the resort of coasters from all parts of the gulf of St. Lawrence, the eastern shores of Prince Edward's island, and the north coast of Cape Breton. The coal-mines in its vicinity are very extensive, and the coal is excellent. Iron is also found, and manufactured in small quantities. The harbor is capacious, and easy of access. There is no other town in Nova Scotia, except Halifax, so well situated for trade.

Picts. (See *Scots*.)

Picts' Wall; an ancient wall built by the Romans to defend the Britons from the incursions of the Scots and Picts, from Carlisle to Newcastle. It was first built of earth, by the emperor Adrian, in 123, afterwards of stone by Severus, and, in 430, rebuilt of brick by Aëtius, the Roman general. It was eight feet high, twelve thick, and nearly 100 miles in length. There are still some remains visible in the counties of Northumberland and Cumberland.

Pictures, Living, or Tableaux Vivans. After attitudes (q. v.) had become a peculiar study (see *Hamilton, Lady*), the imitation of the attitudes of statues or pictures by living persons became very popular, and it was but one step farther to give to living persons the appearance of a picture. A frame is made of sufficient width, covered with gauze, behind which the persons stand in their proper attitudes, either invented by an artist (e. g. from the striking descriptions of a poet), or taken from celebrated historical pictures, gay or grave. Living pictures are particularly popular in Germany, where they are sometimes exhibited on the theatre with the necessary preparations, much more often, however, in families on birth-days and similar festive occasions, and are a source of great and refined amusement.

Picturesque, in the most general meaning of the word, denotes every thing proper for painting; that is to say, such objects as present a variety of tints, the charm of light and *chiaro scuro*, &c. It is particularly applied to wild, romantic scenery. The word is easily transferred from the subject to the treatment; and we call a picture which satisfies the claims of art, is perfect in its grouping, represents a charming whole, &c., *picturesque*. This word, too, like numerous other terms used in painting, is applied to the art of describing and representing by the pen; and a book of travels is called *picturesque* if it represents a variety of things and scenes in a lively and forcible manner. *Picturesque*, too, is often applied, at least in French, to books of this sort, when accompanied with illustrative designs, as in the common title *Voyage pittoresque*. In the theory of the arts, the word *picturesque* is used as contradistinguished to *poetic* and *plastic*. The *poetical* has reference to the fundamental idea to be represented,—to the painter's conception of his subject; whilst the *picturesque* relates to the mode of expressing the conception, the grouping, the distribution of objects, persons and lights. The poetical part of a picture, as well as its mechanical execution, may be without fault, and yet the picture a total failure, as regards the picturesque.

Picus, an old soothsayer, or wood-deity, in Italy, son of Saturn and father of Faunus, was beloved by the sorceress Circe, who changed him into a woodpecker because he would not return her passion. His wife, Canens, pined away into air from grief. Picus was represented with the head of a woodpecker, and presided over divination.

Piedmont; a principality and principal province of the Sardinian monarchy, from which it was separated by the French in 1798, and, in 1802, incorporated with France. (See *Sardinian Monarchy*.) On the fall of Napoleon (1814), it was restored to the king of Sardinia, and the duchies of Milan (the Sardinian part) and Montferrat have been united with it. It is now divided into twenty-six districts. Piedmont, in a narrower sense, borders on the Valais and Savoy to the north, on France to the west, on Nizza and Genoa to the south, and on the Sardinian Milanese and Montferrat to the east. Within these limits, it contains a population of 1,400,000, on a superficial area of 6575 square miles; including the Sardinian Milanese and Montferrat, it has a population of 2,322,000 on 12,000 square miles. Piedmont has its name (*pie di monte*, foot of the mountain) from its situation, at the foot of the Pennine Alps (in which are the lofty Montrosa and the Great Bernard) on the north, and of the Graian and Cottian Alps (including Montblanc, the Little Bernard, Montcenis and Monteviso) towards France and Savoy. The principal river is the Po (q. v.), which flows down from these mountains, and receives all the rivers of the province; the Doria, Stura and Sesia from the left, and the Vraita, Maira and Tanaro from the right. On the south lie the Maritime Alps, separating Genoa and Nizza from Piedmont. To the north and west it is covered with high mountainous chains, from which less elevated ridges shoot off, and terminate, in the central part, in plains. This portion, which is watered by the Po, and which is composed of an agreeable variety of hill, plain and valley, is the most fertile part, and is in a state of high cultivation, yielding corn, wine, oil, fruits, rice and hemp. The breeding of the silkworm is carried to such extent in no other part of Italy, and produces yearly 22,000,000 *lire* worth of silk, most of which is exported raw. The northern, western and southern districts supply the central region with wood. The Piedmontese are industrious and frugal, and are all Catholics, excepting 20,000 Waldenses. (See Chateauvieux's *Letters on Italy*.) They have some silk, linen and woollen manufactures, and thousands of them are seen travelling about Italy, France and Germany, as pedlars. Their language is a mixture of the French and Italian. The capital of Piedmont is Turin. (q. v.)

Piedmontese Revolution. When the house of Savoy was restored, in 1814, to its possessions on the mainland of Italy, it understood not how to act under the existing circumstances. Salutary regulations, which had been introduced during the period of the French dominion, were annulled, and oppressive ones retained. French and Sardinian forms conflicted, because the officers of the old and of the new organizations did not understand one another. The course of justice was arbitrarily interrupted, and the greatest dissatisfaction was created by the character of the French military police. This state of things induced several men of the highest classes to aim, in imitation of France, at a constitutional form of government for Savoy, Piedmont and Genoa. The events in Spain, Portugal and Naples increased the excitement. Austria was making preparations against Naples, and the resistance expected there increased the hopes of the *Adelfi* and *Federati* for Italian independence. The friends of the constitutional system and the enemies of the Ultramontanists formed a combination for obtaining, by force, a freer form of government. Thus, at the end of Feb., 1821, a conspiracy arose among the nobility and officers. Through the influence of the Spanish ambassador to Turin, the chevalier Bardaxi, the Spanish constitution became the watch-word of the disaffected, though some preferred the system of two chambers and the French constitution. It was the intention of the conspirators to choose the prince of Carignano, their chief. The revolution broke out, March 10, among several regiments at Fossano, Tortona and Alessandria. The conspirators had gained over the common soldiers by the rumor that Austria required the disbanding of the national army, and designed to occupy the principal fortresses of Piedmont with Austrian troops. Alessandria was the focus of the revolution. On the 11th, the cry of rebellion, and "Huzza for the king and the Spanish constitution!" was heard in Turin. On the 12th, some officers opened to the *Federati* and the students the citadel of Turin. The people now, for the first time, joined in the cry "Huzza for the king! Huzza for the Spanish constitution! War on the Austrians!" On the 13th, king Victor Emmanuel resigned the crown, and, in the absence of his successor (his brother Felix, duke of Genevois, who was then at Modena), appointed prince Charles Albert of Carignano regent. All the ministers received their dismission. The state-prisoners were set at liberty, and the Carbonaria triumphed in all places, with the exception of Nizza, whither Victor Emmanuel repaired, and of Savoy. On the evening of the 13th, the regent found himself compelled, at the demand of the deputies of Turin, to proclaim the adoption of the Spanish constitution, on condition, however, of the royal consent. He swore to it on the 14th, but with a reservation of the former order of succession, and of toleration towards all religions, besides the changes to be made by a national parliament and the king. He appointed, at the same time, a new ministry, and, on the 16th, a supreme junta. Savoy was comparatively little affected by the revolution. It excited, however, much interest in Lombardy, and some young men from Milan and Pavia hastened to Alessandria and Turin. Meanwhile, the emperor of Austria at Laybach had ordered, on the 14th, that an army should advance to the frontiers of Piedmont, and Alexander caused 90,000 Russians to march from Volhynia to Italy; but, the insurrection being speedily quieted, they halted in Galicia. The duke of Genevois proclaimed at Modena, on the 16th, all that had been done since the abdication of his brother, null and void, and placed the count Salieri della Torre, governor of Novara, at the head of the royal troops, to put down the insurgents. This proclamation deprived the junta of courage and energy. In Turin, however, the insurgents maintained their influence; the Austrian ambassador was obliged to depart; an army was assembled to occupy Lombardy, and, on the 21st, the regent, the prince of Carignano, appointed the count of Santa Rosa minister of war. But that same night the prince fled to Novara, whence he repaired to the Austrian head quarters, then to Modena, and thence (as the duke of Genevois forbade him the court) to Florence. He remained in retirement till 1823, when he fought as a volunteer in the French army against Spain, after which he returned to Turin. He had formally renounced the regency on the 23d. The minister of war ventured on the most daring steps. In the orders issued March 23, he declared that the king was to be regarded as a prisoner of Austria; all the Piedmontese were called to arms; the Lombards, he said, would join them, and France would not refuse its assistance. In Genoa, where the governor, count Desgeneix attempted, on the 21st, to restore the old order of things, a part of the people and troops, on the 23d, maintained by force the Spanish constitution. But the news of the destruction of the Neapolitan army in the Abruzzi quelled the courage of the insurgents. Under these circumstances (according to Santa Rosa's account), the Russian minister at Turin, count of Mocenigo, suggested an amicable mediation: "no Austrian was to enter Piedmont; full amnesty might be hoped for, and even a constitution." The junta accepted the proposition, but it was rejected by the conspirators in Alessandria. Meanwhile, at the request of the duke of Genevois, an Austrian corps under count Bubna had approached the frontiers. April 8, Bubna formed a junction with the royal army at Novara. A battle took place, and the insurgents, after a brave resistance of seven hours, were wholly dispersed on the bridge over the Agona. The victors advanced, without opposition, towards Turin. The junta, therefore, separated on the 9th. Count Santa Rosa evacuated the citadel, and, on the 10th, Della Torre, the royal commander, entered Turin. On the 11th and following days, the Austrians took possession, without resistance, of the citadels of Alessandria, Voghera, Tortona, Casale, Vercelli, Stradella and Valenza. In consequence of the treaty of Novara, of July 14, 1821, the Sardinian government paid 300,000 francs monthly, for 12,000 men, besides furnishing their provision. The number of the foreign garrison troops was subsequently diminished to 5000 men; and after the treaty of Verona, of Dec. 14, 1822, the last evacuation—that of Alessandria—took place, Oct. 31, 1823. The restoration of the absolute authority of the king ensued, April 10. The duke of Genevois, however, did not assume the regal dignity till his brother, by the declaration of Nizza, of April 18, persisted in his abdication. The insurgents fled, some through Switzerland to France, some embarked in Genoa for Spain. The property of sixty-five persons who had fled was confiscated, and July 19, Aug. 10 and 23, 1821, twenty-one were condemned to be hanged for high treason, and their property to be confiscated. The rest, likewise twenty-one, were sentenced to the galleys. Of the whole, however, but thirteen were arrested, among whom were two of those condemned to be hanged. Of these, one was executed at Genoa, and the other banished, because he had, on his flight, been driven to Monaco by a tempest. At the same time, the king issued from Piacenza rigorous prohibitions of secret societies, and two decrees of amnesty, with many exceptions. Oct. 17, 1821, he made his entry into Turin.—Concerning the revolution of Piedmont, see the *Trente Jours de Révolution en Piémont*, by an eye-witness (Lyons, 1821); *Précis Histor. sur les Révolut. des Roy. de Naples et de Piémont, en 1820 et 1821, par M. le Comte D.* The *Hist. de la Révolut. de Piém.*, by Alphonso de Beauchamp (Paris, 1821), contains much that is false. The *Simple Récit des Événemens arrivés en Piém., dans le Mois de Mars et d'Avril*, 1824, *par un Officier Piémontais*, is not impartial. Count Santorre de Santa Rosa, one of the opponents of the government, wrote, in France, *De la Révolution Piémontaise* (*3me édit., augmentée de Notes et de l'Analyse de la Constitut. Sicilienne*, Paris, 1822).

Pieno (*Italian*, full); a word often used for *tutti*, *grande*, or *grossi*; and sometimes with *choro*, as, *pieno choro* (a full chorus); sometimes employed in a vehement or energetic sense.

Piepowder Court. (See *Courts of England*.)

Pierian; an epithet given to the muses, from mount Pierus, in Thessaly, which was sacred to them, or from their victory over the nine daughters of the Macedonian king Pierus, who were changed into magpies for having dared to engage in a contest with them.

Pierides was also one of their designations, for the same reasons.

Pierre, Jacques Bernardin Henri de Saint, one of the most ingenious and feeling philosophical French writers, born at Havre, in 1737, was, in his twelfth year, so disgusted with the restraints of school, that he sailed with his uncle to Martinico. After his return, which was hastened by home-sickness, he entered the engineer school at Paris, and went to Malta in the capacity of an officer. A duel obliged him to flee, and he received the place of sub-lieutenant of engineers in the service of Catharine II, which he resigned after eighteen months. He next served with the French party in Poland, was made prisoner by the Russians, released, and, after residing in Warsaw, Dresden, Berlin and Vienna, returned to Paris. He obtained a commission in the engineer corps, stationed in the Isle de France, but in two years threw up his commission, on account of some disputes in which he became involved, and returned to France. Here begins his literary life. He divided his small pension with his mother, and, in 1773, published his *Voyage à l'Isle de France*. In 1784 appeared his *Études de la Nature*. Louis XVI now appointed him superintendent of the botanical garden and of the museum of natural history. His *Paul et Virginie* (1788) passed through fifty impressions in one year, and has been translated into almost all the languages of Europe (English by Helen Maria Williams). Napoleon conferred on him the order of the legion of honor, and Joseph Bonaparte granted him a pension of 6000 francs. St. Pierre was also the author of *La Chaumière Indienne*, *Harmonies de la Nature*, and several other works. His *Œuvres* appeared at Brussels, in 8 vols. He died Jan. 21, 1814, at his estate near Paris. Aimé Martin has written an Essay on the Life and Writings of Bernardin de St. Pierre (Paris, 1820), and edited his works, in 12 vols., 8vo.

Pierre, St.; a small island belonging to France, near the southern coast of Newfoundland; lat. 46° 46′ N.; lon. 56° 9′ 27″ W. The inhabitants, in 1831 1025 in number, are engaged in the cod fishery. The colony of St. Pierre and Miquelon is under an officer residing in St. Pierre, called the *commandant and administrator*. These islands are also fishing stations for the French vessels engaged in the fishery in this region, the number of which, in 1825, was nineteen. They are important to France, as being the only possessions which she retains in these latitudes.

Pierrot; a comic mask on the French theatre, a mixture of the harlequin (q. v.) and the pulchinello. (q. v.) He is dressed like the latter, and is facetious like the for mer. With the Italians, he is a simpleton and servant. (See *Masks*.)

Piété, Mont de. (See *Lombard-House*.)

Pietism, in German theology. The name of *pietists* was originally applied, in derision, to some young teachers of theology at Leipsic, who began, in 1689, to deliver ascetic lectures on the New Testament (*collegia philobiblica*, or *collegia pietatis*) to the students and citizens. The idea of imparting theological instruction in a popular way, came from their friend and teacher Spener (the German Fénélon), who had held religious meetings in Frankfort from the year 1670, at which the laity prayed, and were allowed to ask questions, &c. The theology of the Lutherans, at that time, had become stiff and dogmatical, attacking unsparingly all other systems, and making the essence of theology to consist in doctrines. Spener and his friends were desirous of reëstablishing a Christianity of love and charity, which should manifest itself in the life of the individual. The governments, however, in several places, soon prohibited such assemblies, and in some cases, they may, in fact, have given rise to disorders. Pietism, however, did not expire; on the contrary, the practical principle that a pious life was better than erudition, gave it much success. An austere, often sombre, morality, a belief in a sudden regeneration by the operation of divine grace, private meetings for religious exercises, &c., distinguished the pietists, though they never formed a separate sect. But, like the systems of so many sects, originating from a sincere desire for some better means of quenching a religious thirst than the dogmas of the established church afforded, pietism, in many cases, degenerated by degrees into an ill-regulated religious excitement. The Jansenism and quietism of France, and the Methodism of England, sprang from sources similar to those of the German pietism, and in the present struggle in Germany, between the rationalists and supernaturalists, the feelings and views of the contending parties, though their relative standing is different, are much connected with those of the pietists and the adherents to the established doctrines. (See *Spener*.)

Pietola; a village on the Mincio (q. v.), about two miles from Mantua, according to the traditions of the neighborhood the birth-place of Virgil, which Silius Italicus calls *Andes*. A grotto in the vicinity is called *Virgil's grotto*. The French laid out a public garden here, in which they intended to erect a statue of the poet; but it was destroyed during the second siege of Mantua. The claims of Pietola to this honor are, however, rendered doubtful by the latest investigations. (See *Virgil*.)

Pietro di Cortona. (See *Cortona*.)

Pigafetta, Antonio, the companion of Magellan, and the historian of his discoveries, was born at Vicenza, towards the end of the fifteenth century. Inflamed, by reading the accounts of the Spanish and Portuguese discoveries, with a desire of visiting distant parts, he studied the mathematical sciences and navigation; and when Magellan (q. v.) was sent out, by Charles V, to search for a western passage to the Moluccas, in consequence of the dispute between Spain and Portugal concerning the line of demarkation (q. v.) between their respective possessions (see *Alexander VI*), Pigafetta obtained leave to accompany him. He sailed from Seville Sept. 20, 1519, and returned to that port Sept. 8, 1522, having been the first to circumnavigate the world. He kept a journal of the voyage, of which Ramusio gives an abstract in the first volume of his collection, and of which a complete edition was first published by Amoretti (q. v.), who discovered a copy in the Ambrosian library.

Pigalle, Jean Baptiste, a sculptor, born at Paris in 1714, son of a carpenter, was the pupil of Lemoine and Lemayne, and, by the assistance of some friends, was enabled to visit Italy. After spending three years in Italy, he returned to France, and executed a Mercury and a Venus, which were presented to the king of Prussia (1748), by Louis XV. In 1744, Pigalle had been received into the academy of painting and sculpture, and, in 1756, he was employed to complete the monument to marshal Saxé. His reputation was now established, and Bouchardon (q. v.) intrusted to him the completion of his celebrated equestrian statue in the Place Louis XV. His last work was a girl pulling a thorn from her foot; this statue, and another representing a boy holding a cage, from which the bird had escaped, were much admired for their beauty and tenderness. Pigalle, who had been appointed sculptor to the king, and honored with the order of St. Michael, died in 1785.

Pigeon (*columba*). The domestic pigeon is supposed to be derived from the *cœnas*, or stock-dove; it has been the companion of man from a very early period; the varieties, however, known to the Greeks, were very few, but were greatly increased among the Romans, with whom the breeding of these birds was quite a science. The same attention to them has continued in some modern nations, and the adepts in the art pretend that the almost innumerable varieties may be bred to a feather. The names bestowed on these varieties are indicative of their peculiarities, as, *tumblers*, *croppers*, *carriers*, *runts*, &c. In their wild state, the pigeon tribe live on high trees, generally in flocks. They feed on seed, though sometimes on fruit, retaining their food in the crop for some time. The greater proportion of the species build on elevated situations, forming a loose nest of small twigs, and wide enough to contain both sexes; the female lays two eggs, several times a year. They feed their young by regurgitating the food contained in the crop. They pair for life, though they assemble in flocks. They have no song, their note being a simple cooing. The external characters of the genus are a weak, slender and straight bill; short legs, with no distinct membrane between the toes; tail with twelve feathers; they walk well, and fly with great swiftness, continuing on the wing for a long time. They are found in every part of the world, but the species are most numerous in warm climates. Of all the varieties of the pigeon, the most remarkable for its attachment to its native place is the messenger or carrier. This is distinguished from the others by a broad circle of naked white skin round the eyes, and by its dark blue or blackish color. They obtained their name from the circumstance of their being used to convey letters from one place to another. The bird is brought, for this purpose, from the place where it is intended to convey the information; a letter is tied under its wing, and it is set at liberty; and, from some inconceivable instinct, it directs its flight, in a straight line, to the very spot from whence it had been taken. (See *Carrier Pigeon*.) There are several species of pigeons found in the U. States, the most numerous of which is the *C. migratoria*, passenger or wild pigeon. This is of a bluish-slate color, with a white belly; the throat, breast and sides vinaceous; tail black, of twelve feathers, five lateral whitish; the female is paler, and her breast of a cinereous brown. These birds visit the different states, in innumerable quantities, but are more abundant in the Western States. The times of their appearance in Pennsylvania is early in the spring, and again in autumn, when they pass in flocks consisting of thousands. Wilson states that these flocks are insignificant in comparison to those observed in the Western States, which abound in the favorite food of these birds. They breed there, and the same author mentions that some of the *breeding-places*, as they are termed, extend for thirty or forty miles in extent. They are taken by means of clap-nets, managed by a person concealed in a hut composed of brush-wood. In this way, ten to forty or fifty dozens are sometimes taken at a sweep. Their appearance is also a signal for a general turn out of every one that can obtain a gun. (For a detailed description, see Wilson, *Am. Or.*, V. p. 102.) The other American species are, the *C. fasciata*, band-tailed pigeon; *C. leucocephala*, white-crowned pigeon; *C. Zenaida*, Zenaida dove; *C. Carolinensis*, American turtle dove; *C. passerina*, ground dove. (See *Turtle Dove*.)

Pig Iron. (See *Iron*, vol. vii, p. 72.)

Pig of Ballast; a large mass of cast iron or lead, used for ballast.

Pig of Lead; the eighth part of a fodder, amounting to about 250 pounds weight.

Pigments; materials used for imparting color, whether by dyeing, painting, or otherwise. (See *Dyeing*.) The coloring substances used as paints are partly artificial and partly natural productions. They are derived principally from the mineral kingdom; and even when animal or vegetable substances are used for coloring, they are always united with a mineral substance (an earth or an oxide), because by themselves they have no body, which they acquire only by a mixture with a mineral. In painting, the colors are ground, and applied by means of some liquid, which dries up without changing them. For this purpose different fluids are employed, and the difference of the material used, with the method of employing it, has given rise to the modes of painting in water colors, oil colors, in fresco (q. v.), in distemper, &c. For oil painting (q. v.), mineral substances are more suitable than lakes prepared with minerals, because the latter become darker by being mixed with oil. The mineral colors all consist of metallic oxides, or salts, or of combinations of sulphur. The first are less liable to change than the others. Among the metallic oxides used as pigments are minium and massicot, from lead; the ochres, burnt sienna, umber, from iron; smalt, from cobalt. Among the salts, or saline metallic combinations, are, white lead, Cremnitz white, from lead; Prussian blue, from iron; verdigris, mineral green, Brunswick green, from copper. Metallic combinations containing sulphur are cinnabar (from quicksilver) and orpiment (from arsenic). The lake colors have tin or alum for their basis, and owe their tint to animal or vegetable coloring substances. Among them are the red lakes, prepared from cochineal, madder, and of inferior quality, from Brazil wood; the yellow from fustic, weld, &c.; the brown from several other coloring barks; finally, indigo, which, however, is entirely vegetable. In staining porcelain and glass, the metallic colors which are not driven off by heat, and are not easily changeable, are used. Gold containing tin gives a purple, nickel green, cobalt blue, iron and manganese black, uranium yellow, chrome green. (On the subject of painters' pigments, their preparation and application, see Bouvier's *Manuel des jeunes Artistes et Amateurs en Peinture* (Paris, 1827); Tingry's *Painter's and Varnisher's Guide*.)

Pigmy. (See *Pygmy*.)

Pike (*esox*); a genus of fish, distinguished by having only one dorsal fin near the tail, a long, slender body, compressed laterally, and the lower jaw projecting beyond the upper. They are extremely voracious and destructive, and their digestive powers are as remarkable as their voracity: they not only feed on fish, but also destroy young aquatic birds, &c. They attain a great longevity, though many of the accounts given of the age which individuals of this genus have reached, must be received with great reservation. The common pike (*E. lucius*), when in season, is beautifully marked with a mixture of green and bright yellow spots. When out of season, however, these colors become dull. They grow to a large size, and are taken in great numbers as an article of food. Their flesh is white, firm and well tasted. They are caught either in what are termed *crown* nets, or by the hook. When the latter mode is used, the line must be very strong, and the hook fastened with wire. The bait generally used is a small fish. The Ohio pike (*E. osseus*) also attains a very large size, and is exceedingly abundant in the western rivers and lakes. This fish presents a formidable appearance, being covered with bony rhomboidal scales, forming a complete coat of mail. It is as voracious and destructive as the common species, and, like it, forms a palatable food, when not too large.

Pike. The pike, in the middle ages, with the cross-bow, sword and battle-axe, formed the chief weapons of the infantry. The pike was from sixteen to eighteen feet long, consisting of a pole with an iron point. (See *Lance*.) Men armed with it were called *pike-men*. After the invention of guns, they gradually fell into disuse, and, in fact, can hardly be considered very effective arms in modern warfare, unless in the hands of excited insurgents, or of people fighting for their liberty, when every species of arms is effective, even flails and staves, wielded by monks. The Prussian *Landsturm* (q. v.) was armed with pikes in 1813, to be used in case no better arms were to be had. The Swiss first substituted the halberd (q. v.) for the pike, towards the fifteenth century. For some time, every company in the armies of Europe consisted of at least two thirds pike-men, and one third harquebussiers. (q. v.) Gustavus Adolphus, the great improver of the modern art of war, about 1630, omitted the pike-men in some regiments entirely. The invention of the bayonet (q. v.) drove it still more out of use.

Pike, Zebulon Montgomery, was born at Lamberton, in the state of New Jersey, Jan. 5, 1779. His father was a respectable officer in the army of the U. States. He entered the army while yet a boy, and served for some time as a cadet in his father's company, which was then stationed on the western frontiers of the U. States. At an early age, he obtained the commission of ensign, and, some time after, that of lieutenant. By a life of constant activity and exposure, he invigorated his constitution, and prepared himself for deeds of hardihood and adventure. When he entered the army, he had been instructed only in reading, writing, and a little arithmetic. By his own exertions, he acquired, almost without the aid of a master, the French and Latin languages, the former of which, it appears from his journal, he was able to write and speak with sufficient accuracy for the purposes of business. To these he afterwards added a competent knowledge of the Spanish. He also studied the elementary branches of mathematics, and became skilful in all the ordinary practical applications of that science. He seems, besides, to have had a general curiosity, to which no kind of knowledge was without interest: he read with avidity every book which fell in his way, and thus, without any regular plan of study, acquired a considerable stock of various information. Soon after the purchase of Louisiana, the government of the U. States determined upon taking measures to explore their new territory, and the immense tract of wilderness included within its limits, in order to learn its geographical boundaries, its soil and natural productions, the course of its rivers, and their fitness for the purposes of navigation, and other uses of civilized life, the numbers, character and power of the tribes of Indians who inhabited this territory, and their dispositions towards the U. States. With these views, while captains Lewis and Clarke were sent to explore the unknown sources of the Missouri, Pike was despatched, on a similar expedition, for the purpose of tracing the Mississippi to its head. Aug. 9, 1805, Pike embarked at St. Louis, on his first expedition to the head of the Mississippi, and proceeded up the river, with twenty men, in a stout boat, provisioned for four months; but they were soon obliged to leave their boats, and proceed on their journey by land, or in canoes, which they built after leaving their large boat, and carried with them on their march. For eight months and twenty days, they were almost continually exposed to hardship and peril, depending for provisions upon the chase, and enduring the most piercing cold. They were sometimes for days together without food, and they frequently slept without cover upon the bare earth, or the snow, during the inclemency of a northern winter. During this voyage, Pike had no intelligent companion upon whom he could rely for advice or aid, and he literally performed the duties of astronomer, surveyor, commanding officer, clerk, spy, guide and hunter, frequently preceding the party for many miles, in order to reconnoitre, or rambling for whole days in search of deer, or other game, for provision, and then, returning to his men in the evening, hungry and fatigued, he would sit down in the open air, to copy, by the light of a fire, the notes of his journey, and to plan the course of the next day. Within two months after his return from this expedition, Pike was selected by general Wilkinson for a second expedition, to the interior of Louisiana, in order to acquire such geographical information as might enable government to enter into definitive arrangements for a boundary line between our newly-acquired territory and North Mexico. Winter overtook the party unprovided with any clothing fit to protect them from cold and storms. Their horses died, and, for weeks, they were obliged to explore their way on foot through the wilderness, carrying packs of sixty or seventy pounds weight, besides their arms, exposed to bitter cold, relying solely on the produce of the chase for subsistence, and often for two or three days altogether without food. Several of the men had their feet frozen, and all, except Pike and one other, were in some degree injured by the cold. After a three months' winter march, they explored their way to what they supposed to be the Red river. Here they were met by a party of Spanish cavalry, by whom Pike was informed, to his great astonishment, that they were not on the Red river, but on the Rio del Norte, and in the Spanish territory. Opposition to this force would have been idle, and he reluctantly submitted to accompany the Spaniards to Santa Fè, to appear before the governor. From Santa Fè, he was sent to the capital of the province of Biscay, to be examined by the commandant-general, where he was well received, and entertained for some time, after which he was sent on his way home, under the escort of a strong party of horse. He arrived, with his little band, at Natchitoches, July 1, 1807. The most vexatious circumstance attending this unexpected sequel to his expedition was the seizure of all his papers, except his private journal, by the Spanish government. He had been furnished with a complete set of mathematical instruments, and had made frequent and accurate observations. He had thus ascertained the geographical situation of the most important points with much precision, and had collected materials for an accurate map of a great part of the country which he traversed. Pike, upon his return, received the thanks of the government, and was immediately appointed captain, shortly after a major, and, upon the further enlargement of the army, in 1810, a colonel of infantry. A narrative of his two expeditions, accompanied by several valuable original maps and charts, was published by him, in octavo, in 1810. Immediately after the declaration of war, in 1812, Pike was stationed with his regiment upon the northern frontier, and, upon the commencement of the campaign of 1813, was appointed a brigadier-general. He was selected to command the land forces in an expedition against York, the capital of Upper Canada, and, April 25, sailed from Sackett's Harbor, in the squadron commanded by commodore Chauncey. On the 27th, he arrived at York, with about 1700 chosen men, and immediately prepared to land. As soon as the debarkation commenced, a body of British grenadiers was paraded on the shore, and the Glengary fencibles, a local force, which had been disciplined with great care, appeared at another point. Large bodies of Indians were also seen in different directions, while others filled the woods which skirted the shore. General Sheaffe commanded in person. The landing was effected under a heavy fire of musketry and rifles from the Indians and British. General Pike immediately ordered a charge. After a short conflict, the enemy fled towards their works, and the Indians dispersed in every direction. The whole force, being now landed and collected, was led on by general Pike in person to the attack of the enemy's works. After carrying one battery by assault, they moved on towards the main works. The fire of the enemy was soon silenced by the artillery of the assailants, when a terrible explosion suddenly took place from the British magazine, which had been previously prepared for this purpose. Large stones were thrown in every direction with terrible force, and scattered destruction and confusion among the troops. General Pike was struck on the breast by a heavy stone, and mortally wounded. While the surgeons were carrying him out of the field, a tumultuous huzza was heard from the American troops: Pike turned his head with an anxious look of inquiry: he was told by a sergeant, "The British union jack is coming down, general—the stars are going up." He heaved a heavy sigh, and smiled. He was then carried on board the commodore's ship, where he lingered for a few hours. Just before he breathed his last, the British standard was brought to him: he made a sign to have it placed under his head, and expired without a groan.

Pilasters. (See *Architecture*, vol. i, p. 338.)

Pilate, Pontius, the successor of Valerius Gratus in the government of Judea, A. D. 27. He is said to have been born in Spain. Pilate was procurator, or præpositus, of Judea (Suetonius, *Vespasian*, 4), and, as was sometimes the case in a small province, or in a part of a large province, discharged the office of a governor; hence he had the power of punishing capitally (Tacit. *Annal.*, xii, 23), which procurators did not usually possess, although Judea was a part of the province of Syria. He endeavored to introduce the Roman standards with the image of the emperor into Jerusalem, in violation of the Jewish usages, attempted to get possession of the treasure of the temple, and put to death some Galileans in the midst of the sacrifices—an act which brought upon him the hostility of Herod, tetrarch of Galilee. When Christ had been condemned to death by the Jewish priests, who had no power of inflicting capital punishments, he was carried by them to Pilate to be executed. Pilate, seeing nothing worthy of death in him, sent him, as a Galilean, to Herod, who, however, sent him back to Pilate. Yielding to the clamors of the Jews, the Roman governor finally ordered Jesus to be executed, but permitted Joseph of Arimathea to take his body and bury it. Pilate was afterwards removed from his office by Vitellius, prefect of Syria (A. D. 37), and, according to tradition, was banished by Caligula to Gaul, where he is said to have died, or committed suicide, at Vienne, A. D. 40. The Scala Santa, near the church of Santa Croce, in Rome, is said to be formed of the twenty-eight steps of the marble palace of Pilate, and the devout therefore ascend it only on their knees. In the church itself is shown the inscription in Greek, Hebrew and Latin, placed by Pilate on the cross. It is written with red lead on cedar wood.

Pilatre de Rozier. (See *Aëronautics.*)

Pilchard (*clupea pilchardus*); a species of fish resembling the herring, not only in form, but also in its migrations and stated returns. It is about nine inches in length, with large scales: the back is bluish, and the sides and belly silvery; the head is compressed, and the mouth without teeth. The upper angle of each of the gills is marked with a large black spot. These fish annually appear on the English coast during the summer, and are taken in immense quantities. The statements of the numbers caught at one time are almost beyond belief: thus it is said that, in 1767, there were at one time enclosed in the bay of Ives, in Cornwall, 7000 hogsheads, or 2,450,000. The average amount of the export of these fish from England is about 30,000 hogsheads. In some years, so few pilchards visit the coast, that great distress is occasioned among the fishermen, who mainly depend on the capture of these fish for subsistence. The dog-fish (a species of shark) are great enemies of the pilchards, following the shoals, and devouring them in amazing numbers.

Piles. (See *Hemorrhoids.*)

Pilgrimages. To visit places or objects with which interesting associations are connected is natural to every age and people. Athens or Rome, the ruins of a feudal castle, or the graves of the great or the beloved, attract our steps and awaken our sensibilities. The livelier the susceptibility, the greater will be the interest. In ages, therefore, in which feeling predominates over reason, this interest will be greater than in calmer times. In early nations, therefore, we find a strong disposition to visit places which are hallowed by religious associations. In some religions, however, this trait appears stronger than in others, and the visiting of holy places is made an act of particular merit. The injunction of pilgrimages is common in the religions of the East. How important an event is the pilgrimage to Mecca in the life of a pious Mohammedan! (See *Kaaba*, *Mecca*, *Hadjy*, and *Mohammed.*) With the Christians, pilgrimages became more frequent as more honor was paid to the relics of martyrs or saints; and the simple piety of the early devotees was particularly gratified by visiting the sepulchre of the Savior, and the spots where he had lived, taught and suffered. The Saracens permitted the Christian pilgrims to visit the holy sepulchre without molestation; but, when the rude Turks took possession of Palestine, it was very different, and the repeated complaints of pilgrims returning from Jerusalem occasioned the excitement which led to the crusades. (q. v.) Pilgrimages were performed in the middle ages to many different places. Some spots, however, attracted a much larger concourse than others, the credulity of the time associating with them peculiarly great or numerous miracles, or peculiarly extensive indulgences (q. v.) being granted to the pilgrims who visited them. This was the case, for instance, with Rome, Compostella and Tours. Pilgrimages were, in fact, so common, that the learned Rühs considers them as a great means of communication between the various nations of the middle ages, and as having promoted the diffusion of many arts and improvements of various kinds, at a time when travelling was dangerous, when no newspapers existed, and, in fact, the peaceful intercourse of nations was so little developed. The following instance will show to what extent pilgrimages were performed. In 1428, in the reign of Henry VI, there went to the shrine of St. James of Compostella, in Spain, from London 280 pilgrims, from Bristol 200, Weymouth 122, Dartmouth 90, Yarmouth 60, Jersey 60, Plymouth 40, Exeter 30, Liverpool 24, Ipswich 20—in the whole, 926 pilgrims from 11 towns. Catholics still continue to make pilgrimages, but by no means to the same extent as formerly, in times of less reflection and more enthusiasm. Governments, however, have discouraged the concourse of pilgrims, particularly assemblages of several days' continuance, which still exist in some instances. The licentiousness which Burckhardt describes as prevailing among the pilgrims to Mecca (see *Kaaba*) agrees perfectly with what is known of the general pilgrimages of Christians. Pilgrims still continue to travel to Rome, where they are provided for in establishments founded by pious persons. The last numerous assemblage of pilgrims at Rome was in the year 1825, when pope Leo XII proclaimed a jubilee. (See *Jubilee.*)

Pillau; a seaport of East Prussia, eight leagues from Kőnigsberg, at the southern extremity of a narrow peninsula formed by the Baltic and the Frische-Haff; lat. N. 54° 33′ 39″; lon. E. 19° 55′. The port is safe and commodious, and all vessels going to Kőnigsberg or Elbing stop here. A fort protects the place; 4518 inhabitants. Much fishing is carried on here.

Pillnitz; a palace of the king of Saxony, on the right bank of the Elbe, two leagues south of Dresden. The court remains here annually for some time. Its situation is very beautiful. In history, Pillnitz is famous for a meeting of the emperor Leopold II, Frederic William II of Prussia, the count of Artois, the ex-minister Calonne, and several other personages, from August 25 to 27, 1791. A treaty of offensive alliance was not concluded, but preliminaries were agreed on for a defensive alliance, between Austria and Prussia, which was settled at Berlin, Feb. 7, 1792. The brothers of the king of France received, Aug. 27, only an assurance from Prussia and Austria, that they hoped all the powers whose assistance had been asked for would be ready to contribute, according to their means, to restore the royal family, and to establish a government founded on the rights of sovereigns, and the welfare of the people, in which case Austria and Prussia would join them. In the mean time, they would give orders that their troops should hold themselves in readiness to act. Six secret articles are also said to have existed. (See Schőll's *Histoire des Traités de Paix*, vol. iv.) The French considered the Pillnitz convention as the basis of the coalition (q. v.) of Europe against France, which greatly irritated them.

Pillory; a frame of wood erected on posts, with movable boards, and holes through which are put the head and hands of a criminal for punishment. In this situation criminals in England were formerly often exposed to the outrages of the mob in a way inconsistent with any rational notions of punishment. Those who were offensive to the crowd were in no small danger from the missiles by which they were assailed. The culprit was allowed to make speeches, defending himself and attacking his enemies. In 1816, this punishment was abolished in all cases except that of perjury.

Pillow; a block of timber whereon the inner end of the bowsprit is supported.

Pilot Mountain. (See *Ararat.*)

Pilpay, or **Bilpai**, a fabulist, is said to have lived 400 years before Christ, and to have written, by the order of king Dabschlim, a well known collection of interesting narratives and apologues, in the Indian language, under the title of *Kalila and Dimnah'*, which, in ancient and modern times, has met with general approbation, and has been translated into most of the Eastern and Western languages. But it has been shown by Beigel, in Ideler's work On the Names of the Stars, p. 366, that this account of the author is entirely erroneous, and that the name *Pilpay* originated from the Sanscrit word *hitopadesa* (useful instruction), which is the title of the work in the Sanscrit edition (Serampore, 1804, 4to.; London, edited by Wilkins, 1808, 4to.). Silv. de Sacy has published a fine edition of the Arabic, with a French translation (Paris, 1816, 2 vols.). Wilkins translated the Sanscrit original into English (London, 1787).

Pimelite; a variety of clay colored by oxide of nickel.

Pimento. The quantity of pimento imported into the U. States in the year ending September 30, 1830, was 1,915,211 pounds; the quantity exported during the same time was 558,766. (For an account of the plant, see *Allspice.*)

Pin; in commerce, a little necessary instrument made of brass wire, chiefly used by women in adjusting their dress. When the wire is received at the manufactory, it is wound off from one wheel to another, and passed through a circle of a smaller diameter in a piece of iron. Being thus reduced to its proper size, it is straightened by drawing it between iron pins, fixed in a board in a zigzag manner. It is afterwards cut into lengths of about four yards, and then into smaller pieces, every length being sufficient for six pins. Each end of these is ground to a point by boys, each of whom sits with two small grindstones before him, turned by a wheel. Taking up a handful, he applies the wires to the coarsest of the two stones, moving them round, that the points may not become flat. He then gives them a smoother and sharper point on the other stone: a lad of twelve years of age can point 16,000 in an hour. When the wire is pointed, a pin is taken off from each end, till it is cut into six pieces. The next operation is to form the heads, or *head-spinnings*, as they are termed: this is done by a spinning wheel. One piece of wire is with rapidity wound round another; and the interior one being drawn out, leaves a hollow tube between the circumvolutions. It is then cut by shears, every two turns of the wire forming one head. These are softened by throwing them into iron pans and placing them in a furnace till they are red hot. As soon as they are cold, they are distributed to children, who sit with anvils and hammers before them. These they work with their feet by means of a lathe. They take up one of the lengths, and thrust the blunt end into a quantity of the heads which lie before them; catching one at the extremity, they apply it immediately to the anvil and hammer, and by a motion or two of the foot, the point and the head are fixed together in much less time than can be described, and with a dexterity that can only be acquired by practice. The pins are thrown into a copper containing a solution of tin and wine lees. Here they remain for some time, and when taken out, their brass color has become changed to a dull white. In order to give them a polish, they are now put into a tub containing a quantity of bran, which is set in motion by turning a shaft that runs through its centre, and thus, by means of friction, the pins become entirely bright. They are now separated from the bran, which is performed by a mode exactly similar to the winnowing of corn; the bran flying off and leaving the pin behind it fit for sale.

Pinang. (See *Prince of Wales's Island.*)

Pinchbeck; an alloy of copper, in which the proportion of zinc is greater than in brass.

Pinckney, Charles Cotesworth, a distinguished American revolutionary officer, was born in South Carolina, and educated at Westminster school, in England, and subsequently at the university of Oxford, in both of which institutions he enjoyed a high reputation for strength of character and proficiency in his studies. After reading law at the Temple, he returned to Carolina, in 1769, but was not able to practise his profession for any length of time, the commencement of the revolution obliging him to exchange the gown for the sword. He was first appointed a captain in the continental line, and, soon afterwards, commander of the first regiment of Carolina infantry. When the south had been freed, for a period, from invasion, by Moultrie's gallant defence of the fort on Sullivan's island, colonel Pinckney joined the northern army, and was made aid-de-camp to Washington. In that capacity he was present at the battles of Brandywine and Germantown. When the south was again menaced with danger, he returned to Carolina, and displayed great resolution and intrepidity, on the rapid and harassing march which saved that city from general Provost, and on the subsequent invasion of Georgia, and the assault on the lines of Savannah. On the approach of the army under sir Henry Clinton, and of the fleet conducted by admiral Arbuthnot, he was intrusted with the command of the fort on Sullivan's island. A favorable breeze and a flowing tide, however, enabled the fleet to sail into the port of Charleston, beyond the reach of his guns. He then hastened with a part of the garrison to aid in defending the city, and was for continuing hostilities to the last extremity, not, as he said, because he thought they would eventually be able to repel the enemy, but because "we shall so cripple the army before us, that, although we may not live to enjoy the benefits ourselves, yet to the U. States they will prove incalculably great." Other counsel, however, prevailed, and he was made prisoner with the rest of the besieged. Some time after the return of peace, he was placed in command of the militia of the lower division of the state, but was very soon appointed by Washington, whose confidence and friendship he enjoyed in a high degree, minister plenipotentiary to France. He resigned his commission in consequence, and sailed for Europe. The hostile feeling of the French directory towards this country, caused them to reject its conciliatory propositions in an insulting manner, and to order its minister out of the territories of the republic. General Pinckney immediately communicated to the government the indignities which he had received, and retired to Holland. Not long afterwards, he was joined by general Marshal and Mr. Gerry, with fresh instructions to reiterate propositions to the directory for the adjustment of differences. When, at length, war was inevitable, and the whole U. States were resounding with his celebrated sentiment, "Millions for defence, but not a cent for tribute," he returned home, having been named a major-general by Washington, who had been placed at the head of the forces raised for the protection of the American shores. Superior rank, however, was accorded to general Hamilton, who had been his junior during the revolution. Some one spoke to general Pinckney of this preference as unjust, but he briefly answered, that he was satisfied that general Washington had sufficient reasons for it. "Let us," he continued, "first dispose of our enemies; we shall then have leisure to settle the question of rank." Previously to his going to France, as we should have mentioned before, he had been offered, by president Washington, several places under government of the highest importance, all of which, however, private considerations obliged him to decline. The first was that of judge of the supreme court; the next that of secretary of war, on the resignation of general Knox; and then that of secretary of state, when Randolph had been removed. He was a member of the convention which framed the constitution of the U. States, and afterwards, in the convention of South Carolina, assembled for deliberating upon the instrument, he contributed greatly to its adoption. He died in August, 1825. As a lawyer, general Pinckney was distinguished for profound and accurate learning, and strength and ingenuity of reasoning, without having much pretension to eloquence. In his practice he was high-minded and liberal, never receiving any compensation from the widow and orphan. His literary attainments were extensive, especially his classical knowledge; and no one was a more zealous friend to the advancement of learning. For more than fifteen years before his death, he acted as president of the Bible Society of Charleston—an office to which he was named with unanimity by the Christians of almost every sect. In private life, his polished manners and generous disposition secured the esteem and affection of all.

Pinckney, Thomas, late major-general in the army of the U. States, was born October 23, 1750, in Charleston, South Carolina, and was the second son of chief-justice Pinckney and Eliza Lucas, daughter of colonel Lucas, governor of Antigua. He was carried to England in the year 1753, with his elder brother, the late general Charles Cotesworth Pinckney, by their father, who returned, in 1758, on account of the war between France and

England, to Carolina, where he soon after died, leaving directions that his sons should receive the best education, were it even necessary to sell part of his estate for that purpose. They were educated at Westminster school and at Oxford. They studied law at the Temple, and were admitted to the bar in England. At the commencement of the revolutionary war, the brothers joined the continental army, where they rose to the rank of colonel and major. The elder brother was aid-de-camp to general Washington, and the younger served in that capacity with general Lincoln, and then with count d'Estaign, who commanded the French army at the disastrous siege of Savannah. He also served as aid to general Gates, and was wounded and captured at the battle of Camden, in 1780. On his recovery, he was sent, as a prisoner of war, to Philadelphia. During the administration of general Washington, he was offered the place of judge of the federal court, which he declined. He was then elected the second governor of South Carolina, as successor to general Moultrie, and was eminently successful in establishing the authority of the laws, which had been deranged during the long and disastrous periods of the southern war. Shortly after the termination of his office, he accepted from general Washington the mission to the court of St. James, where he continued several years. He was then employed on a mission to the court of Spain, where he formed the treaty of St. Ildefonso, by which the free navigation of the Mississippi was secured to the U. States, before its cession to France and subsequent purchase by Mr. Jefferson. The situation of his estate requiring his presence at home, he solicited his recall, and returned to America in 1796. Soon after, he was elected a member of congress from Charleston district, where he generally acted with that party at the head of which was general Washington. After a few sessions, he retired from public life, and devoted himself to the care of his estate and the education of his children. At the commencement of the war of 1812, he received from Mr. Madison the appointment of major-general of the sixth military district. It was under his command that the Indian war in which general Jackson distinguished himself was undertaken and brought to a successful issue. He advised the war department to subdivide his military district, extending from North Carolina to the Mississippi, as too large for one command, and recommended general Jackson to the command of a separate district to be formed in the south-west. At the return of peace, he was solicited by the president to continue his services, and especially to endeavor to recover the southern property taken from the islands after the signature in Europe of the treaty of peace; but he preferred to resign his command and his connexion with public life. His private life was highly useful. The agriculture of his country received his constant attention, and he contributed to advance it by many scientific improvements. To these objects, and to his large circle of relatives and friends, he was devoted till his death, November 2, 1828, in the seventy-eighth year of his age.

Pindar, Peter. (See *Wolcot.*)

Pindar; one of the most energetic and sublime poets of Greece. He sang the praises of the victors in the Grecian games,—those public festivals in which the most distinguished men, even kings, competed. Not only the conquerors and their fellow citizens, but all assembled Greece was celebrated in his poems, and thus they were soon spread wherever the Greek language was spoken. To understand Pindar, it is necessary to be intimately acquainted with Greek antiquities. In the judgment of the best critics, his poems belong to the most beautiful remains of ancient literature. Forty-five are still extant, fourteen in celebration of Olympic victors, twelve of Pythian, eleven of Nemean, and eight of Isthmian. They are all written in the Doric dialect. Of the editions of Pindar, the following deserve to be recommended:—the edition of West and Welsted (Oxford, 1697, fol.), of Heyne (latest 1817, 3 vols.), and of Böckh (Leipsic, 1811, 3 vols., 4to.). Some of the odes have been translated by Gilbert West.—Pindar was born in Bœotia, in or near Thebes, in the sixty-fifth Olympiad, about 520 B. C. His father was a flute-player, and he is said to have been himself a masterly performer on the lyre. At an early age, he was instructed in music and poetry; and for the developement of his poetical talent he was especially indebted to the beautiful Corinna, who was herself a distinguished poet, and is said to have obtained the prize more than once in the poetic competition with her friend. Little else is known with certainty of his life, even the date of his death is doubtful: according to some, he died in his sixty-fifth year, according to others, he lived to the age of eighty or ninety. His reputation was so great that Alexander, notwithstanding his exasperation against the Thebans spared the house in which Pindar had lived, when the city was destroyed. The same had been done by the Spartans when they entered Thebes in triumph. Even in his lifetime, his fellow-citizens are said to have erected a statue in his honor.

Pindarees (that is, *freebooters*); the name given in British India to the hordes of mounted robbers who, for several years (since 1812), infested the possessions of the East India company. In the autumn, when the Nerbudda is so low that it is fordable by cavalry, they entered into the rich territory of the company, devastated the country, and carried off the spoils to their mountains. These freebooters had existed since 1761, but made themselves particularly formidable in the nineteenth century. They were descended mostly from the caste of Mohammedan warriors, which formerly received high pay from the Indian princes. But the British East India company disarmed many of the tributary native princes, and maintained under the command of the English residents at the Indian courts large bodies of mercenary troops, which the mediatised nabobs were obliged to pay. The number of the Pindarees was thus increased, and they were secretly excited by the Indian tributaries to attack the company. In 1817, the British governor-general, the marquis of Hastings, determined on the destruction of these robbers, whose force was estimated at 40,000 horse. Attacked on all sides, they were conquered and dispersed. Garrisons were placed in some fortresses, and hostages taken to Calcutta; their other strong places were demolished. A flying party of seapoys was kept without intermission on the right bank of the Nerbudda, &c. At last, a moderate yearly tribute was imposed on the subjected tribes. The East India company has followed the rule of increasing their revenue, territory and troops, after every war, at the expense of the vanquished, so that the subjected princes have seldom ventured to break a second lance with the British governor-general.

Pindemonte, cavaliere Ippolito, an Italian poet, was born at Verona, in 1753, and, at the age of eighteen years, distinguished himself by his poetical productions. Having travelled through Italy, France and England, he preserved the impressions made on him by his journey in his *Viaggi*. In his *Poesie Campestri*, he speaks with enthusiasm of English scenery and life. His *Arminio*, a tragedy founded on the death of Arminius, contains choruses of warriors and virgins which are models of style. His lyric poems are among his best works, and display a depth of thought and feeling with which the author seems to have been inspired by English literature. Besides translations from Homer, Virgil, Ovid and Catullus, his *Fata Morgana*, *Elogia di Gessner*, and *Il Colpo di Martello*, are worthy of notice. Pindemonte lived at Venice, and died in 1828.—His brother, the marquis *Giovanni Pindemonte* (born 1751, died 1812), was the author of some dramatic works—*Componimenti Teatrali*—and translated Ovid's *Remedia Amoris*.

Pindus; a mountainous ridge in Greece, between Thessaly, Macedonia, Epirus and Ætolia. It was, like Helicon and Parnassus, a seat of Apollo and the muses. (See *Œta*.) It is now called *Mezzovo*.

Pine. A genus of plants, the principal one of the *coniferæ*, consisting of lofty evergreen trees with acicular leaves, and their branches disposed in a verticillate form. The flowers are monœcious, and the fruit is a cone, having the seeds attached to the inside of each scale. The pines, together with the spruces and larches, form the most striking feature in the vegetation of temperate climates, and are, besides, among the most useful of the products of the vegetable creation. Formerly these three genera were united; but the true pines are readily distinguished by having their leaves, to the number of two, three or five, united at base in a cylindrical membranous sheath. About thirty species are known, of which nearly one half inhabit North America. Our account of the American species is chiefly drawn from the truly noble work of the younger Michaux. We begin with the red Canadian pine (*pinus resinosa*), a northern species, inhabiting the whole of Canada from the Atlantic to the Pacific, and also found in the northern and eastern parts of the U. States: it is rare on the coast south of the forty-third parallel of latitude, and even on the mountains has not been hitherto observed beyond the forty-first. In Canada and Nova Scotia it is called *yellow pine*—a name which, in various parts of the U. States, is applied to several different species; it is sometimes also improperly termed *Norway pine*. Even in those districts where most common, it does not constitute a large proportion of the forest, but occupies small tracts of a few hundred acres, where the soil is dry and sandy, and grows either alone or in company with the white pine. The trunk rises to the height of seventy or eighty feet by about two in diameter at base, and is chiefly remarkable for its uniform size for two thirds of its length: the bark is of a clearer red than in any other of our pines; the leaves are in pairs, and are collected in bunches at the extremity of the branches; and the scales of the cones are unarmed - a character which serves to distinguish it from allied species. The wood is compact and fine-grained, rendered heavy by resinous matter, and is highly esteemed for its strength and durability. In the British provinces and in Maine, it is frequently employed in naval architecture, especially for the decks of vessels, furnishing planks free from knots, of forty feet in length. It is also used for masts, and has furnished the main-mast of a fifty-gun ship. It is exported to G. Britain, both from Maine and from the St. Lawrence. In fine, Michaux esteems this tree of so much importance, that he recommends its introduction in the north of Europe. When young, it is a beautiful tree, and the vegetation is always vigorous. The scrub pine, or gray pine (*P. banksiana*) is a dwarf species, from three to ten feet high, extending farther north than any other in America, but unimportant in a useful point of view. Within the U. States it is found only on some of the northern mountains. The true yellow pine (*P. variabilis*) is widely spread over the U. States, south of lat. 42°, but is most abundant in the sandy districts of lower New Jersey, the peninsula between the Delaware and Chesapeake, and the lower parts of Virginia. On the south-western parts of the Alleghany mountains and the surrounding country, it enters in a greater or less proportion into the composition of the forests, abounding on the most barren soil: in the lower parts of South Carolina and Georgia, it is rare, growing only in spots, and is known by the name of *spruce pine*, or, more frequently, *short-leaved pine*. The trunk rises to the height of fifty or sixty feet, by fifteen or eighteen inches in diametor at base, and sometimes more: the leaves are four or five inches long, and are usually in pairs, but sometimes in threes on the younger shoots; the cones are small, oval, and armed with fine spines. The heart is fine-grained, compact, moderately resinous, and is highly esteemed for its excellence and durability. Immense quantities are used in naval architecture at New York, Philadelphia and Baltimore, for decks, masts, yards, beams and cabins, and it is considered next in durability to the long-leaved pine: it is, besides, employed for various mechanical purposes, and, in some districts, houses are entirely constructed of it. The boards are exported to G. Britain and the West Indies, and in both places, are sold much higher than the white pine, but at a lower rate than the long-leaved. At Liverpool the timber is called *New York pine*. Turpentine and tar may be obtained from the tree, but in too small quantities, and with too much labor to yield a profit. The Jersey pine (*P. inops*), has received this appellation from being most abundant in the lower part of New Jersey, where it grows in company with the yellow pine. It occurs, however, in the more south-western parts of the Union, and is sometimes called *scrub pine*. This is a small tree, rarely attaining the height of thirty or forty feet, with a diameter of a foot at base. The leaves are in pairs, one or two inches long, and the cones are armed with strong spines. The trunk is too small to be of any utility in the arts, and, besides, consists of a great proportion of sap. A small quantity of tar has been obtained from it in some parts of Kentucky. The Table mountain pine (*P. pungens*) is remarkable for being one of the most local of our plants. The trunk attains the height of forty or fifty feet; the leaves are thick, stiff, and in pairs; and the cones are sessile, about three inches long by two in diameter at base, and are armed with strong ligneous spines. The Table mountain in North Carolina is almost exclusively covered with this pine, although it is rare on the surrounding summits, and has not been found beyond the immediate vicinity. It has not yet been applied to any useful purposes. The pond pine (*P. serotina*) occurs frequently in the lower parts of the Southern States; but, possessing nothing peculiar in its appearance, and being appropriated to no use, and being, moreover, lost in the wilderness of long-leaved pines, it has received no specific name from the inhabitants. The above appellation was given it by Michaux, from the circumstance of its growing on the borders of small ponds and swamps, although as frequently found in a dry soil. The leaves are five or six inches long, and are united by threes; the cones are usually opposite, in pairs, about two and a half inches long, and have the form of an egg; their scales are armed with fine short spines, which are easily detached, and do not release the seeds till the third or fourth year. This tree attains the height of thirty-five or forty feet by fifteen or eighteen inches in diameter at base, and is remarkable for the remoteness of the branches, which begin to spring on the lower half of the stock. More than half of the largest trunks consists of sap; and for this reason the timber cannot become of any great utility in the arts. The pitch pine (*P. rigida*) inhabits the northern and middle sections of the Union, and does not appear to exist in the western or lower parts of the Southern States. It is most abundant along the Atlantic coast, where the soil is diversified, but generally meagre. The ridges of the Alleghanies in Pennsylvania and Virginia are sometimes covered with it, and in some parts of the latter state it has received the name of *black pine*. The forty-fifth degree of latitude appears to be its northern limit. It is frequently seen in large and miry swamps, and in such situations attains the height of seventy or eighty feet by two in diameter at base; and it appears to support the presence of sea-water better than any other pine. The leaves are in threes, varying much in length, as do the cones in size; the latter are armed with acute spines. The branches are very numerous, and occupy two thirds of the trunk, which renders the wood extremely knotty. The quality of the wood varies according to the situation; in swamps it is light, soft, and consists of a greater proportion of sap, but in a dry, gravelly soil it is compact, heavy, and contains a large proportion of resin. These defects render it much inferior to the yellow pine; but, as this is becoming scarce, it takes its place for some purposes. In some parts of the Alleghanies houses are built of it, and it serves perfectly well for ship pumps, for which purpose stocks containing very little heart are preferred. The bakers and brick-makers of our principal cities, and above all, the steam-boats of our eastern waters, consume it in immense quantities. From the most resinous stocks the lampblack of commerce is procured. The pitch pine seems to have abounded formerly in the New England states, for they have furnished a certain quantity of tar; and even at the present time, a little tar is made on lake Champlain, for the use of the small vessels plying on its surface. A small quantity is also made in lower New Jersey, and brought to Philadelphia, where it is less esteemed than the tar of the Southern States. Formerly the tar that was required on the Ohio, was obtained, at an extravagant price, from the Alleghanies, and from the borders of Tar creek, which empties into the Ohio about twenty miles below Pittsburg. The loblolly, or old field pine (*P. tæda*), is found throughout the lower parts of the Southern States, and extends to the thirty-eighth parallel of latitude. In the vicinity of Petersburg and Richmond it is sometimes improperly called *white pine*. From this point to the Cape Fear river it is abundant wherever the soil is dry and sandy, often exclusively occupying lands which have been exhausted by cultivation; and in the more southern states, it is the most common species after the long-leaved pine, but grows only along the narrow marshes which intersect the pine barrens, where the soil is moderately fertile and susceptible of cultivation. The loblolly pine often exceeds eighty feet in height, with a wide spreading summit, and, next to the white pine, is the loftiest of our species. The leaves are six inches long, united by threes, or sometimes fours, on the young and vigorous shoots. The cones are four inches long, and armed with strong spines. The wood consists of a still larger proportion of sap than any above-mentioned; trunks of three feet diameter having hardly six inches of heart; but, notwithstanding, most of the houses in that part of Virginia are built of it, and it is even used for ground floors, although the boards, which are only four inches wide, shrink and become uneven. In the southern ports it is used for ship pumps, like the pitch pine of the north, and at Charleston for building wharves. As the timber decays speedily on being exposed to the air, this is to be regarded as one of the least valuable of the pines; but, on account of its rapid growth and fine appearance, Michaux recommends it to the south of Europe. The long-leaved pine (*P. palustris*) is, perhaps, the most important of all our forest trees. Not only does it furnish all the resin, tar, pitch and turpentine consumed in the U. States,—articles so indispensable to our navigating interest,—but the timber is hardly inferior to the white oak in naval architecture, and, moreover, the tree grows only in a soil so sterile as to be incapable of being converted to any other use. It is known in commerce under a variety of names; in those districts where it grows, it is called *long-leaved pine*, *yellow pine*, *pitch pine*, and *broom pine*; in the Northern States, it is termed *southern pine*, or *red pine*; and in England and the West Indies, *Georgia pitch pine*. It usually grows to the height of sixty or seventy feet, with a trunk fifteen or eighteen inches in diameter for two thirds of this height. The cones are very large, seven or eight inches long, by four in diameter, are armed with small spines, and contain seeds of an agreeable flavor. The unusual length of the leaves, about twelve inches, gives this tree a peculiarly striking appearance. It is first found about Norfolk, in lat. 37°, and from this point extends south, forming one unbroken mass of forest throughout the Carolinas, Georgia and Florida. It is strictly confined to the lower country, and is not found more than one hundred miles from the sea. Between Wilmington and Fayetteville, however, a species of oak is found in some districts, disseminated in this pine forest, and is the only other tree capable of disputing the soil. The trunk contains but little sap, and the concentrical circles are close and at equal distances, while the resinous matter is abundant and equally distributed, which renders the wood stronger, more compact and more durable than in the other species: it is, besides, fine-grained and susceptible of a brilliant polish, and is applied to a great variety of uses. Four fifths of the houses in the south are built of it, except the roof, which is covered with cypress shingles; but in some districts, the roof is also of pine. In naval architecture, it is employed in the Southern States for the keel, beams, side-planks and pins, by which they are attached to the ribs, masts and top-masts; for the deck it is preferred to the true yellow pine, and is exported to New York and Philadelphia for that purpose. That variety which acquires a reddish hue from growing in certain soils, and is known by the name of *red pine*, is most esteemed, and, in the opinion of some shipwrights, is as solid and durable on the sides of vessels as the white oak, but is said to form less perfect joints at stem and stern. It is also in great request in the north for flooring boards. This is the only pine exported from the Southern States to the West Indies; and numerous small vessels are employed in this trade, especially from Wilmington and Savannah: the planks are also sent to Liverpool, where they are said to be employed in the construction of vessels and wet docks. In addition to this great consumption of the timber, extensive tracts of the pine forests are laid waste by the ravages of a small insect. The long-leaved pine, besides supplying the U. States with nearly all the resinous matter required in ship-building (commonly called *naval stores*), in which point of view its place could not be made good by any other species, furnishes a large annual surplus to be exported to the West Indies, Great Britain, and other parts of Europe. Formerly tar was made in South Carolina, Georgia and Florida, but now this branch of business is almost entirely confined to the lower parts of North Carolina. The resinous products are of six sorts; turpentine, scrapings, spirits of turpentine, rosin, tar and pitch: the two first are delivered in their natural state, but the others are modified by the agency of fire. The turpentine is the sap obtained by making incisions into the trunk, and the scrapings consist merely of the turpentine which becomes hardened before it reaches the boxes placed to receive it; in general 3000 trees yield annually about 75 barrels of turpentine and 25 of scrapings: nearly 100,000 barrels are exported annually to the Northern States and to G. Britain; it is even carried to Paris, where it is called *Boston turpentine*: throughout the U. States it is employed in the manufacture of yellow soap. Great quantities of spirits of turpentine are made in North Carolina by distilling the turpentine in large copper retorts; and it is estimated that six barrels will yield one cask, or 122 quarts of the spirit: about 20,000 gallons are annually exported to other parts of the U. States, to England and to France. The residue is rosin, of which about 5000 barrels are annually exported. All the tar is made from the dead wood; and this is supposed to be the cause of its inferiority to the tar of the north of Europe, which is made from trees recently felled. Pitch is tar reduced by evaporation; and care should be taken in this process not to diminish it beyond one half of the bulk. The long-leaved pine is strongly recommended by Michaux as a valuable addition to the resources of the south of Europe, and its wood is superior to the European pines. The white pine (*P. strobus*) is the loftiest tree in the U. States, and its timber, though not without essential defects, is consumed in much greater quantities, and for a far greater variety of purposes, than any other. It attains the height of 150 feet, and even more, with a trunk five and upwards in diameter: the leaves are united by fives, and the cones are four or five inches long, pendulous, and have thin, smooth scales. Owing to the lightness and delicacy of the foliage, the young trees make an elegant appearance. It is most abundant between the forty-seventh and forty-third parallels of latitude, and along the Alleghanies to their south-western termination. The wood has little strength, gives a feeble hold to nails, and is liable to swell from humidity in the atmosphere; but, on the other hand, it is soft, light, free from knots, easily wrought, durable, and furnishes boards of great width, and, above all, is still abundant and cheap. Throughout the Northern States, three fourths of the houses are almost wholly of white pine, as well as the ornamental work on the outer doors, and in the interior in all. It receives gilding well, and is selected for looking-glass and picture frames. Carvers employ it exclusively for the images on the prows of vessels; and in the north it is used for the inside of mahogany furniture, for trunks, buckets, packing boxes, shelves, and a vast variety of other purposes. In the Northern and Middle States it is employed exclusively for masts, and for this purpose it would be replaced with difficulty. Great numbers of these masts are exported to England, and are said to be lighter than the Riga masts, but have less strength: the bowsprits and yards of men-of-war are also of white pine. The persons engaged in procuring white pine lumber, after having previously ascertained where the trees abound, in the beginning of winter enter the forests, and establish themselves in huts covered usually with birch bark, although the cold is frequently most intense. When the trees are felled and cut into logs, by means of their cattle they drag them to the nearest river, after fixing upon them a mark of property. At the breaking up of the ice, the logs float down the current till they arrive at their destination. If stripped of their bark, logs will remain uninjured for many years; otherwise they are liable to be destroyed by worms. Maine furnishes nearly three fourths of all the white pine lumber exported from the U. States; and next to Maine the shores of lake Champlain appear most to abound with it. A portion of this lumber is floated down the St. Lawrence to Quebec, and the remainder is conveyed through the canal to Albany, and there transferred into sloops for New York. Large forests of the white pine exist on the head waters of the Delaware and the north branch of the Susquehannah, and the lumber is floated down those streams in the spring, for the supply of the different towns on the Delaware and Chesapeake. On the head waters of the Alleghany is cut all the white pine lumber destined, not only for the supply of the towns on the Ohio, but for the New Orleans market, nearly 3000 miles distant. The wood is also formed into clapboards and shingles, which are almost universally in use in the New England states, but which last only twelve or fifteen years: they are exported in great quantities to the West Indies. The *pinus flexilis* grows upon the Rocky mountains near the head waters of the Arkansas, extending to the limit of perpetual snow. It is remarkable for the flexibility of the branches, which are numerous, recurved, and form a large dense top. The leaves are in fives, like those of the white pine, and the seeds are used for food by the hunters and Indians. The *pinus lambertiana* is a species of gigantic size, growing west of the Rocky mountains, between the fortieth and forty-third parallels of latitude, and about one hundred miles from the Pacific. Like most of the pines, it is found in a sandy soil; but it does not form dense forests, and is scattered singly over the plains among other species. The trunk rises from 150 to upwards of 200 feet in height, and is from 7 to nearly 20 feet in diameter. It is remarkably straight, and is destitute of branches for two thirds of its height. The leaves are in fives, and the cones are pendulous at the extremities of the branches, and require two years to attain their full growth, when they are upwards of a foot in length, and nearly four inches in diameter at the thickest part. The timber is white, soft and light, and produces abundance of a pure amber-colored resin, which, when the trees are partly burned, acquires a sweet taste, and in this state is used by the natives as a subsitute for sugar. The seeds are eaten either roasted, or pounded into coarse cakes for use during the winter season. This species resembles most the white pine, but is very different in habit, and in the parts of fructification. Among the more interesting of the exotic species is the wild pine or Scots fir of Europe. This forms, almost exclusively, immense forests, north of lat. 55°, but in more southern parts is chiefly found on the mountains. The trunk attains the height of eighty feet and upwards, by four or five in diameter, and the timber is applied to a great variety of uses, and especially is excellent for masts. These, together with the timber in other forms, are exported from Riga, Memel, Dantzic, and other parts of the north to the other maritime states of Europe, and particularly to England. Large vessels, and even frigates, have been constructed of this pine; but they are not so durable as those built of oak. In those districts where it abounds, houses, as well as furniture, are generally constructed of it, and it furnishes excellent charcoal for forges; but a more important product is the resinous matter, consisting of tar, pitch and turpentine, of which articles it supplies four fifths of the consumption in the European dock-yards. This pine has, besides, the advantage of growing in extremely different soils and exposures, and is strongly recommended to the attention of the American people; when the white pine shall have become scarce, it will, perhaps, be more advantageous to substitute the culture of this species. The name of *red*, or *yellow deal*, is given in G. Britain to its wood, while the wood of the Norway fir (*pinus picea*) is called *white deal*. The *P. maritima* grows in the south of Europe, and is useful on account of its yielding resinous products and lampblack. The stone pine (*P. pinea*) is a Mediterranean species, chiefly remarkable on account of the seeds, which have an agreeable flavor, analogous to that of almonds, and frequently make their appearance upon the table. They are three years in ripening. The trunk rises to the height of fifty or sixty feet, with a diameter at base of fifteen or twenty inches. The wood is useful for carpenter's work, &c., and, according to Olivier, is the only kind employed by the Turks for masts. Pine forests are extremely liable to be frequently ravaged by fire; and from their great combustibility it is extremely difficult to arrest the progress of the flames when once they have gained footing. In some parts of France, the following method is practised with success:—If a fire breaks out in the forest, a second is kindled at a point directly opposite, when a current of air sets from the first to the second, which carries the flames to a common centre, leaving the surrounding woods uninjured.

Pine-Apple (*bromelia ananas*). This fruit, usually pronounced the first in the world, was originally found by the Europeans in Peru, and has not been known in Europe above two centuries. It passed from Brazil to the West Indies, and thence was transported to the East Indies, where it has long been successfully cultivated. The leaves are canaliculate, and spiny on the margin; the stem erect, and about two feet high; the flowers blue, and united in a dense spike, which is crowned at the summit with a tuft of leaves; the berries, in ripening, unite, and give to this spike somewhat of the form of a pine-cone, but it is much larger. The seeds have been rendered abortive by cultivation. The pine-apple is most readily reproduced by planting the terminal tuft of leaves; but, in our green-houses, it is far inferior to the tropical fruit, and yet is very generally cultivated in many parts of Europe, especially near the larger cities. In one or two of the southern provinces of Spain, it is raised in sheltered situations in the open air. Many varieties of the pine-apple have been produced, but they may be referred to seven principal ones. Some of the other species of true *bromelia* have crowns, and the fruit of most of them, though small, is eatable. The *B. pinguin* has the fruit separately in clusters, and not in a cone, and the leaves afford a fibre, which is manufactured into cordage, or sometimes into good cloth. From the pine-apple is made very good wine, which turns in about three weeks, but recovers by longer keeping. The fruit is also sometimes preserved entire, and, when taken out of the sirup, is iced with sugar.

Pinel, Philip, member of the institute, and of the legion of honor, the Howard of the insane, was born in 1745, at St. André, in the department of the Tarn, studied at Toulouse, and Montpellier, where he supported himself by teaching mathematics. In 1778, he went to Paris, and at first applied himself to the study of the sciences connected with medicine, but afterwards devoted himself entirely to that science itself. In 1791, he was made directing physician at the Bicêtre, an insane hospital, and, in 1794, at the Salpêtrière. The harsh treatment of the insane then in vogue, their chains and unhealthy dungeons, filled him with horror. He introduced gentle treatment, uniting firmness with kindness, and was the first definitely to recommend moral remedies (in his work *Sur l'Aliénation mentale*), and one of the earliest to establish a regular police in the mad-houses. He also proved the existence of what he called *manie sans délire*. He placed less stress on physical treatment, and, in particular, he agreed with Bordeu in condemning blood-letting. In general, he recommended delay. "What art cannot effect," he used to say, "time may accomplish." His pathology was founded on Condillac's system of philosophy, and was directed more to a consideration of the obvious phenomena than to a thorough insight into the nature of diseases; yet his *Nosographie philosophique* (Paris, 1798; 6th ed. 1818) formed an epoch in French medicine, as it supplied a want then generally felt. In many respects, Pinel is to be considered as the precursor of Bichat, since he was the first to point out the physiological and pathological difference of the various textures. He edited, for some time, the *Gazette de Santé*, and was a collaborator in Fourcroy's *Médecine eclairee par les Sciences physiques*, and in the great *Dictionnaire des Sciences médicales*. In the time of terror, Pinel concealed the unfortunate Condorcet (q. v.) in his house. In 1823, when the school of medicine was reformed by the government, M. Pinel was removed from his post on suspicion of entertaining liberal principles; and he died three years later, at the age of eighty-one years.

Pingré, Alexandre Gui, canon of the congregation, and librarian of Ste. Génévieve, astronomer and geographer to the marine, and member of the academy of sciences at Paris, was born in Paris, in 1711. He distinguished himself at first as a theologian, particularly in the Jansenistic controversy; but, at the age of thirty-eight, he was induced to devote himself to astronomy, for the purpose of fitting himself for the place of astronomer to the academy of sciences at Rouen. His observations here caused him to be chosen correspondent of the Paris academy, in 1750, and, in 1751, he was called to Paris by its order, to erect and superintend an observatory. Here he continued his observations for forty years, and published an astronomical nautical almanac from 1754 to 1757. In 1756, he became *associé* of the academy, whose Transactions, from 1753 to 1770, contain numerous papers by him. In 1757, he entered upon one of the most difficult of astronomical labors, the theory and calculation of comets—and calculated the paths of more comets than all the other astronomers of Europe together. In 1766, he calculated the eclipses of the sun and moon for a period of 2000 years, for the second edition of the *Art de vérifier les Dates*, with a greater degree of accuracy than Lacaille had done. In 1767, he accompanied Courtanvaux on a voyage, to try the chronometers of Leroy and Berthoud, and made a report on the subject. In 1769, he made a second voyage with Fleurieu for the same purpose, and, in 1771, a third with Borda. In 1769, he observed a passage of Venus over the sun's disk at cape François (he had been prevented from observing a previous passage, in 1761, by the state of the weather). In 1783 appeared his *Cométographie*. In 1790, he completed his History of Astronomy during the Seventeenth Century, and, in 1786, he published a translation of the astronomical poem of Manilius. He died in May, 1796.

Pinguin (from *pinguis*, fat), more commonly called **Penguin** (*aptenodytes*); a genus of birds exclusively found in the Antarctic seas. Their feet are placed more posteriorly than in any other birds, and only afford them support by resting on the tarsus, which is enlarged like the sole of the foot of a quadruped. The wings are very small, and are furnished with rudiments of feathers only, resembling scales. Their bodies are covered with oblong feathers, harsh to the touch, and closely applied over each other. These, with a thick coat of fat, preserve the penguins from the severity of the cold. The water is the natural element of these birds: on land, their motions are slow and awkward, and, from the form of their wings, or rather fins, they cannot fly. While in the water, they move with great alertness and rapidity. They principally feed on fish. The female lays from one to three eggs, forming a rude excavation or burrow in the sand, instead of a nest, and it is only during the period of incubation that they are to be found on shore: at all other times, they live entirely on the water. The largest species is the *A. magellanica*, or great magellanic penguin, which is perhaps the most awkward and ill-shaped of the genus; for, although not more than two feet in length, their bulk is sometimes so great that they weigh from thirty to forty pounds. They derive their name of *penguin* from their excessive pinguitude, or fatness. The birds which Buffon has distinguished by this name belong to a different genus, namely, *alca*, and are known among English naturalists by the appellation of *auk*. They are principally natives of the northern hemisphere, particularly of the Faroe islands.

Pinion, in mechanics; an arbor or spindle, in the body of which are several notches, which catch the teeth of a wheel that serves to turn it round; or it is a lesser wheel that plays in the teeth of a larger one.

Pinite is a crystallized earthy mineral, found in granite and porphyry. Its form is that of a six-sided prism, usually much rounded on the lateral edges; color greenish black and gray; dull, soft, and emitting an earthy odor when moistened. It consists of silex 29.5, alumine 63.75, and oxide of iron 6.75. It is found in several European countries, and in the U. States, at Haddam, Connecticut, in granite, and at Lancaster, in Massachusetts, in quartz veins in argillite.

Pink (*dianthus*); a beautiful and favorite genus of plants, belonging to the *caryophylleæ*. More than one hundred species are known, all, with perhaps one or two exceptions, natives of the northern and temperate parts of the Eastern continent. Their roots are annual or perennial; the stems herbaceous and jointed; the leaves opposite and entire, and the flowers terminal, aggregate or solitary, and always beautiful. Many are common in gardens; and perhaps no plant is more highly esteemed by the florist than the carnation, both for its beauty and its rich spicy odor. It is the general favorite in Germany and Italy, and nearly 400 varieties are enumerated.

Pink; a vessel masted and rigged like other ships, only that this is built with a round stern, the bends and ribs compassing so that her ribs bulge out very much. This renders the pinks difficult to be boarded, and also enables them to carry great burdens, for which purpose they are often used.

Pinkerton, John, F. S. A., was born in Edinburgh, 1758, and was articled to a writer to the signet, in whose office he continued five years. In 1780, he went to London, where he published an octavo volume of miscellaneous poetry, under the title of Rhymes, with dissertations On the Oral Tradition of Poetry, and On the Tragic Ballad. &c. His Essay on Medals (1784, 2 vols., 8vo.) has since gone through two other editions. Among his other works are Letters on Literature, published in 1785, under the assumed name of Heron, which obtained him the acquaintance of Horace Walpole, after whose decease he published Walpoliana; Ancient Scottish Poems, from the (pretended) Manuscript Collection of Sir Richard Maitland, with Notes and a Glossary; Dissertation on the Origin and Progress of the Scythians or Goths; the Medallic History of England (4to.); Scottish Poems, reprinted from scarce Editions (3 vols., 8vo.); Iconographia Scotica, with Notes (2 vols., 8vo., 1795—1797); Modern Geography, digested on a new Plan (2 vols., 4to., 1802; reprinted 3 vols., 1807); General Collection of Voyages and Travels (19 vols., 4to.), &c. He died at Paris, March 10, 1826.

Pinkney, William, a distinguished American lawyer, was born at Annapolis, in Maryland, March 17, 1764. His father was a native of England, and favored the cause of the mother country during the revolutionary struggle, while his son early avowed a decided attachment to that of his native land. After receiving such an education as the imperfect means of the country could then afford, he commenced the study of medicine, but soon relinquished it, and entered, in 1783, into the office of the late judge Chase, then an eminent member of the Maryland bar. In 1786, he was admitted to practice, and soon gave indications of his future distinction. His style of speaking, however, in the outset, was entirely different from its subsequent character, being then calm and placid. In 1788, he was elected a delegate from Harford county to the convention of the state which ratified the constitution of the U. States, and likewise a representative to the house of delegates. Soon after taking his seat, he made an animated speech upon the report of a committee appointed to consider the laws of Maryland prohibiting the voluntary emancipation of slaves; and, in the ensuing session of 1789, pronounced another and superior discourse on the same subject. In both he breathed sentiments of the purest philanthropy. In the year just mentioned, he was married at Havre de Grace (Md.) to the sister of commodore Rodgers. In 1790, he was elected a member of congress; but his election was contested on the ground of his not residing in the district for which he was chosen. He made, himself, a powerful argument in support of his claim; but, after obtaining a favorable decision, he declined the honor, in consequence of his professional pursuits, and the state of his private affairs. In 1792, he was chosen a member of the executive council of Maryland, and continued in that station until November, 1795, when, being elected a delegate to the legislature from Anne Arundel county, he resigned his seat at the council board, of which at the time he was president. During all this period, in which he attained a distinguished political rank in his state, he was so zealous and indefatigable in professional pursuits, that he gradually rose to the head of the bar. His acuteness, dexterity and ardor in the transaction of business, were combined with great readiness, spirit and vigor in debate, and with a rich and fluent elocution, adorned with the finest imagery, drawn from classical lore, and a vivid fancy, the effect of which was increased by the manliness of his figure, a sonorous and flexible voice, and a general animation and gracefulness of delivery. In 1796, he was selected by president Washington as one of the commissioners on the part of the U. States, under the seventh article of Mr. Jay's treaty with Great Britain. He embarked for London, with his family, in July of the same year, and remained absent until 1804, earnestly engaged in the business of his mission, and also in attending to the claim of the state of Maryland for a large amount of public property invested in the stock of the bank of England before the revolution, and which had become the subject of a complicated chancery litigation. His successful exertions in the latter affair were suitably acknowledged by the state of Maryland after his return. He recommenced in Baltimore his professional labors with renewed ardor, and with no diminution of legal knowledge, as he had continued his habits of diligent study during his residence abroad, and had derived all the advantage which could be obtained from frequent intercourse with the first lawyers of England and attendance on its courts of justice. He had, besides, employed a portion of his time in supplying the defects of his early education, with regard to English and classical literature, and, by his application to the subject of elocution and the English language, he had added to his natural facility and fluency a copiousness of elegant diction which graced even his conversation, and imparted new strength and beauty to his forensic style. In 1805, he was appointed attorney-general of Maryland. In the following year, he was again made minister extraordinary to treat with the British government, in conjunction with Mr. Monroe, then minister resident at the court of St. James, upon various subjects of difference between the U. States and England. In 1807, Mr. Monroe returned home, and Mr. Pinkney was left in London as minister resident. His exertions to accommodate matters between the two governments terminating fruitlessly, he took his leave of the prince regent, and embarked for the U. States in 1811. In September of the same year, he was elected a member of the senate of Maryland, and, in the succeeding December, accepted the office of attorney-general of the U. States, tendered to him by Mr. Madison. When war was declared between Great Britain and this country, in 1812, he was chosen to command a volunteer corps raised in Baltimore for local defence, which was attached as a battalion of riflemen to the third brigade of Maryland militia. He was present, and behaved with great gallantry at the unfortunate battle of Bladensburg, where he received a severe wound. After the peace, he resigned his command. In 1814, a bill having been brought into the house of representatives, requiring the attorney-general to reside at the seat of government, Mr. Pinkney resigned the office. In 1815, he was chosen a member of congress from Baltimore, and delivered an able speech on the treaty-making power. In 1816, he was a third time invested with diplomatic functions, being appointed by Mr. Madison special minister to the court of Naples, to demand from it indemnity for the losses which our merchants had sustained by the seizure and confiscation of their property in 1809, during the reign of Murat; and also minister resident at St. Petersburg. He was induced to accept those appointments by the necessity of recruiting his mind and body, almost worn out by his intense application to professional duties. He first proceeded to Naples, where he had various conferences with the minister of foreign affairs, and addressed him an elaborate note, the answer to which, however, he could not wait for, being obliged, by his instructions, to repair at once to the Russian capital. He returned home in 1818. In 1820, he took his seat in congress as a senator from Maryland, and made an elaborate and powerful speech against the clause in the bill for the admission of Missouri into the Union, which prohibited the introduction of slaves into the new state. He continued also to prosecute his engagements at the bar with his wonted ardor; and to his professional zeal, indeed, he may be said to have fallen a victim. In the session of the supreme court in 1822, he had exerted himself in the investigation and argument of a cause in which he felt particular interest, at a time when the state of his health unfitted him for application to study and business. A severe attack of indisposition, Feb. 17, was the consequence; and, after a period of acute suffering, during parts of which he was in a state of delirium, he expired on the 25th of the same month, in the fifty-eighth year of his age. It was as a lawyer that Mr. Pinkney was preëminent. His legal attainments were extensive and profound, and in the investigations connected with the science of jurisprudence, his powers were exerted to the most advantage. His faculty of reasoning upon legal subjects has rarely been equalled. He was, besides, enthusiastically fond of his profession, and no one was ever more ambitious of its triumphs. Into every cause which he undertook he threw his whole soul; and for it he prepared himself with almost unparalleled industry. His oratory, though at times too declamatory and rhetorical, was rich, copious and fluent in a high degree. For the power of undergoing the immense labor which he incurred, he was indebted to a constitution of great natural vigor. His personal appearance was fine and commanding.

Pinkneya Pubescens, or Georgia Bark; a small tree, closely resembling the cinchona, or Peruvian bark, and said to possess the same febrifuge qualities, growing wild in the southern parts of Georgia. It rarely exceeds twenty-five feet in height, by five or six inches in diameter at base; the leaves are opposite, five or six inches long, oval, and acute at each extremity; the flowers are pretty large, white, with longitudinal stripes of rose-color, and are disposed in beautiful clusters at the extremities of the branches; each flower is accompanied with a floral leaf, bordered with rose-color near the upper margin; the corolla is tubular; the stamens five, with a single style; and the capsule contains two cells and numerous seeds. The wood is soft and unfit for use in the arts. The inner bark is extremely bitter, and is the part employed with success in intermittents.

Pinnace; a small vessel used at sea, with a square stern, having sails and oars, and carrying three masts, chiefly employed to obtain intelligence and to land men, &c. One of the boats of a man-of-war, used to carry the officers to and from the shore, is also called the *pinnace*.

Pint. (See *Measures*.)

Pinto-Mendez. (See *Mendez-Pinto*.)

Pinturicchio, Bernardino, an eminent painter of the Roman school, the disciple of Pietro Perugino, was born at Perugia, in 1454. He painted chiefly in history and grotesque; but he also excelled in portraits. His chief work was the history of pope Pius II, in ten compartments, in the library at Sienna. Others consider his work in the cathedral of Sospello his best performance. His style was effective, but he made use of too splendid colors, and introduced abundance of gilding. He is said to have died of chagrin at the following circumstance: Being engaged to paint a Nativity for the monastery of St. Francis, at Sienna, he pertinaciously insisted that every thing should be removed out of the room in which he worked, and obliged the monks to remove a great chest, become rotten from age. In the attempt it burst, and discovered a hoard of 500 pieces of gold, to the great joy of the fathers, and the mortification of Pinturicchio. His death took place in 1513. He generally executed compositions of Perugino and Raphael, and received a third of the pay.

Piombino; a principality of Tuscany, lying between Sienna and the Mediterranean, opposite the island of Elba, from which it is separated by the channel of Piombino. The capital, of the same name, has a population of 4150; population of the principality is 17,775; 210 square miles. Piombino was formerly a sovereign principality, to which belonged the island of Elba; but, in 1804, Napoleon granted it to his sister Eliza (see *Bacciocchi*), and, in 1815, it was annexed to Tuscany. (See *Tuscany*.)

Piombo, Sebastiano del; a celebrated painter, born at Venice, in 1485. His family name was *Luciani*. Having renounced music, of which he was very fond, for painting, he studied at first under Giovanni Bellini, and afterwards under Giorgione, whose fine coloring he imitated. Sebastiano commenced as a portrait painter, and the reputation which he soon gained in that branch induced Agostino Chigi, a rich merchant of Sienna, to take him to Rome and employ him in ornamenting his house. The delicacy of his pencil was much admired, and Michael Angelo, who seems to have been somewhat jealous of the growing fame of Raphael, encouraged him to enter into competition with that master, and even supplied him with designs, which Piombo often executed very happily, although by no means capable of lofty conceptions or sublime inventions. When Raphael had painted his celebrated Ascension, Sebastiano was induced by Michael Angelo to attempt to surpass it by the Raising of Lazarus, which is considered his greatest work. His Martyrdom of St. Agatha was also ranked among the pieces of the first masters. His chief merit, however, lay in single figures and portraits. His Pietro Aretino and his Clement VII were admirable likenesses, and specimens of perfect coloring. He was high in favor with Clement, who created him keeper of the papal seals. From this circumstance he derived his surname *Del Piombo*, the seals attached to the papal bulls being, at that time, of lead (*piombo*). This post made it necessary for him to assume the clerical habit, and from that time, he painted but little. He wrote verses, entertained learned men at his table, and only occasionally painted a portrait. He died in 1547. It also deserves to be mentioned, that he invented a peculiar method of painting in oil on walls, in which manner there is a Scourging of Christ to be seen in S. Pietro in Montorio.

Pioneers; laborers attached to an army for the making and repairing of roads, and performing all labors connected therewith, digging trenches, &c. In several armies they are united with the sappers and pontoniers. (See *Pontoon*.)

Piozzi, Hester Lynch, an English authoress, born in 1739, was the daughter of John Salisbury, of Carnarvonshire. Early in life, she was distinguished in the fashionable world by her beauty and accomplishments. In 1763, she was married to Henry Thrale, a brewer of great opulence in Southwark, which borough he then represented in parliament. Soon after commenced her acquaintance with doctor Johnson, of whom she published Anecdotes, in one octavo volume (1786). Mr. Thrale dying in 1781, his widow married, in 1784, Piozzi, a Florentine music master. She accompanied her husband to his native city. Among her writings are, Observations made in France, Italy and Germany (1789); British Synonymy, or an Attempt at regulating the Choice of Words in familiar Conversation (1794); Review of the most striking Events and Characters of the last 1800 Years (1801), &c. Mrs. Piozzi died at Clifton, May 2, 1821, in her 82d year.

Pip, or **Pep** (*pepia*); a disease among poultry, consisting of a white, thin skin, or film, that grows under the tip of the tongue, and hinders their feeding.

Pipe, in law; a roll in the exchequer, otherwise called the *great roll;* whence there is an office called the *pipe-office*, where cognizance is taken of forfeitures to the king.

Pipe; a wine measure, usually containing from 110 to 140 gallons. Two pipes, or 252 gallons, make a tun.

Pipe. We have given a view of the general laws of the motions of liquids in the articles *Hydraulics*, and *Hydrostatics;* but there are some practical results of these laws, as applied to their motions in pipes, which derive importance from the great use made of pipes in the conveyance of water. (See *Aqueducts*.) The friction that occurs between a solid and the surface upon which it moves can be accurately ascertained, but not so with a fluid; for in this, while one part may be moving rapidly, another may be quite stationary, moving slowly, or even moving in a contrary direction. This is particularly observable in rivers, where the central part, or main current, will always be found flowing with much greater rapidity than either side; and experiment proves that the same effect occurs when water flows through pipes; for that water, which is in contact with the side of the pipe, moves with much more resistance than that at the centre, whereby the calculated discharge of any given pipe of considerable length, becomes much less than is due to its magnitude. The term *friction* is applied to this obstruction to the passage of fluids, in the same manner as it is to solids, and it exists to such an extent as to become an object of considerable inconvenience in practice. It can only be obviated by making the conveying pipe of much larger dimensions than would otherwise be necessary, so as to allow the free passage of a sufficient quantity of fluid through the centre of the pipe, while a ring or hollow cylinder of water is considered to be nearly at rest all around it. Other circumstances besides friction likewise tend to diminish the quantity of fluid which would otherwise pass through pipes, such as the existence of sharp or right-angled turns in them, and permitting eddies or currents to be formed, or not providing for the eddies that form naturally, by suiting the shape of the pipe to them. It follows, therefore, that whenever a bend or turn is necessary in a water pipe, it should be made in as gradual a curve or sweep as possible, instead of the form of an acute or even right angle; that the pipe should not only be sufficiently capacious to afford the necessary supply, but should be of an equal bore throughout, and free from all projections or irregularities, against which the water can strike and form eddies or reverberations, since these will impede the progress of the fluid as effectually as the most solid obstacles. The friction of water in channels or pipes has been found to increase as the square of the velocity. It has also been found that the form of the end of the pipe which communicates with the fountain head, or reservoir, greatly affects the quantity of water received by it. If it be gradually enlarged like a trumpet mouth, a larger quantity of water will be received than by any of the modes which follow, because the direction given to the particles by this form is most favorable to their admission. If the entrance to the pipe be abrupt, in consequence of the cavity being wholly cylindrical, the particles will have a tendency to cross each other, and less water will enter the pipe in a given time. And if the end of the pipe projects into the reservoir, a variety of opposing forces will be produced among the particles moving towards the entrance, so that a smaller quantity will be received by the pipe, than in either of the preceding cases. The form of the discharging orifice, likewise, influences the quantity of water delivered by a pipe in a given time. If the end of the pipe be enlarged, by adding to it a frustum of a hollow cone, the amount of water discharged in some cases may be prodigiously increased. This fact, described by Venturi, appears to be the result of the pressure of the atmosphere, aided by the inertia and cohesiveness of the water. The pipes by which water is conveyed beneath the ground are generally of small or moderate size, are intended to be water tight, and have been made from a great variety of materials. It is desirable that they should possess strength, tightness and durability, and that the material of which they are composed should not be capable of contaminating the water. *Wooden pipes* are commonly hollow logs, perforated by boring through their axis, and connected by making the end of one log conical, and inserting it into a conical cavity in the next. Wooden pipes are in common use in this country, but are liable to decay, especially at the joints, where their thickness is smallest. *Iron pipes* are considered preferable to those of wood, being stronger, and, in most situations, more durable. They are made of cast iron, with a socket, or enlarged cavity, at one end, into which the end of the next pipe is received. The joints thus formed are rendered tight, either by filling the interstices with lead, or by driving in a small quantity of hemp, and filling the remainder of the socket with iron cement, made of sulphur, muriate of ammonia, and chippings of iron. *Copper pipes* are extremely durable, and are made of sheet copper, with the edge turned up and soldered. They require to be tinned inside, on account of the poisonous character of some of the compounds which are liable to be formed in them. *Lead pipes* are much employed for small aqueducts, owing to the facility with which they can be soldered, and bent in any direction. They are commonly cast in short pieces, and afterwards elongated by drawing them through holes, in the same manner as wire. Leaden pipes, in general, are supposed not to contaminate the water contained in them, because the carbonate of lead, which is sometimes formed in them, is insoluble in water. They are not safe, however, for pumps and pipes intended to convey acid liquors. *Stone pipes* preserve the water contained by them in a very pure state. They are, however, expensive, on account of the labor of working them, with the exception of soap stone, which, being readily shaped and bored, may be usefully applied to the purpose of conveying water, in those places where it is easily procured. *Earthen pipes*, made of common pottery ware, and glazed on the inside, are sometimes used, but are more liable to be broken than most of the other kinds.

PIPE-CLAY. (See *Clay.*)

PIPE, SMOKING. In Asia, the smoking of pipes is much more general than that of cigars, though the latter are also used, and called in India *cheeroots*. In Russia, Poland and Germany also, pipes are much more common than cigars; the Spaniards, Portuguese and Americans (both North and South), however, much prefer the cigars. Smoking-pipes are of a great variety of kinds. The simplest, and one of the most esteemed, is the clay-pipe. (See *Clay.*) These are formed in moulds, the hollow in the tube being made by running up a wire; the pipes are then dried and baked in a furnace moderately heated. Another kind is made of one long cane, with a bowl and mouth-piece, which is the usual form of Turkish pipes: the mouth-piece is of amber, or a cheaper composition resembling it. In Germany, there are a great number of sorts of pipes, short, long, flexible, with bowls of wood, meerschaum, porcelain, &c. The fine porcelain bowls are wrought with much elegance, and are articles of very considerable luxury. A German pipe generally consists of four chief parts; the mouth-piece, the tube, the bowl, and a part which connects the two latter, and serves to collect the juice descending from the tobacco, and prevent it from getting into the tube. The Eastern *hookah*, or *houkar*, is a very curious instrument, the essential feature of which is, that the smoke passes through water, loses the particles which give it an unpleasant flavor, and becomes cool before it reaches the mouth. The mode of effecting this is as follows: From the bowl, which is on an air-tight vessel, half filled with water, a small tube descends into the water; in the side of the vessel the smoking-tube is inserted, so that it communicates only with the air in the vessel. If the smoker now withdraws the air in the vessel, the atmosphere, pressing from without on the bowl, forces the smoke of the burning tobacco through the small tube into the water, from which it immediately bubbles up and enters the smoking tube, which is generally very long and pliable.

PIPERINE; the active principle of pepper, a new vegetable principle extracted from black pepper by means of repeated digestions in alcohol. The solution is at length evaporated to dryness, when an oily, resinous matter is obtained. This, on being washed in warm water, becomes of a good green color. It has a hot and burning taste, dissolves readily in alcohol, less so in ether. Concentrated sulphuric acid gives it a fine scarlet color. The alcoholic solution, after some days, deposits crystals, which are purified by repeated crystallizations in alcohol and ether, when they form colorless four-sided prisms, with single, inclined terminations. They have scarcely any taste. Boiling water dissolves a small portion of it, but it is insoluble in cold. They are soluble in acetic acid, from which solution feather-like crystals may be obtained. The fatty matter left, after extracting the piperine, is solid at a temperature of 32°, but liquefies at a slight heat. It has an extremely bitter and acrid taste, is very slightly volatile, and may be considered as being composed of two oils, one volatile and balsamic, the other more fixed, and containing the acrimony of pepper.

Pipowders Court. (See *Courts*, vol. iii, p. 588.)

Piquet; a celebrated game at cards, played between two persons, with only thirty-two cards, all the deuces, threes, fours, fives and sixes being set aside. In reckoning at this game, every card goes for the number which it bears, as a ten for a ten, and the ace for eleven, only all court-cards go for ten, and the usual game is one hundred up. In playing, the ace wins the king, the king the queen, and so on. Twelve cards are dealt round, usually by two and two; which done, those that remain are laid in the middle. (For the rules of the game, see Hoyle.)

Piracy is the crime of robbery and depredation committed upon the high seas. It is an offence against the universal law of society, a pirate being, according to sir Edward Coke, *hostis humani generis*. As, therefore, he has renounced all the benefits of society and government, and has reduced himself to the savage state of nature, by declaring war against all mankind, all mankind must declare war against him; so that every community has a right, by the rule of self-defence, to inflict that punishment upon him which every individual would, in a state of nature, otherwise have been entitled to do, for any invasion of his person, or personal property. By various statutes in England and the U. States, other offences are made piracy. Thus, if a subject of either of these nations commits any act of hostility against a fellow subject on the high seas, under color of a commission from any foreign power, this is an act of piracy. So if any captain of any vessel, or mariner, run away with the vessel, or the goods, or yield them up to a pirate voluntarily, or if any seaman lay violent hands on his commander, to hinder him from fighting in defence of the ship or goods committed to his charge, or make a revolt in the ship, these offences are acts of piracy, by the laws of England and the U. States. In England, by the statute of 8 George I, c. 24, the trading or corresponding with known pirates, or the forcibly boarding any merchant vessel (though without seizing her or carrying her off), and destroying any of the goods on board, are declared to be acts of piracy; and by the statute 18 George II, c. 30, any natural born subject, or denizen, who, in time of war, shall commit any hostilities, at sea, against any of his fellow subjects, or shall assist an enemy, on that element, is liable to be punished as a pirate. By statute of George II, c. 25, the ransoming of any neutral vessel, which has been taken as a prize, by the commander of a private ship of war, is declared to be piracy By the act of congress April 30, 1790, if any person, upon the high seas, or in any river, haven or bay, out of the jurisdiction of any particular state, commit murder or robbery, or any other offence which, if committed within the body of a county, would, by the laws of the U. States, be punishable with death, such offender is to be deemed a pirate. By the act of congress 1820, c. 113, if any citizen of the U. States, being of the crew of any foreign vessel, or any person being of the crew of any vessel owned, wholly or in part, by any citizen of the U. States, shall be engaged in the foreign slave-trade, he shall be adjudged a pirate. Notwithstanding the expression used in this statute, the question, says chancellor Kent, remains to be settled, whether the act of being concerned in the slave-trade would be adjudged piracy, within the contemplation of the code of international law. In England, by the act of parliament passed March 31, 1824, the slave-trade is also declared to be piracy. An attempt has been made to effect a convention between the U. States and Great Britain, by which it should be agreed that both nations should consider the slave-trade as piratical; but this attempt has hitherto been unsuccessful. In the time of Richard III, by the laws of Oleron, all infidels were regarded as pirates, and their property liable to seizure wherever found. By the law of nations, the taking of goods by piracy does not divest the actual owner of the property. By the civil institutions of Spain and Venice, ships taken from pirates become the property of those who retake them. Piracy is every where pursued and punished with death, and pirates can gain no rights by conquest. It is of no importance, for the purpose of giving jurisdiction in cases of piracy, on whom or where a piratical offence is committed. A pirate, who is one by the law of nations, may be tried and punished in any country where he may be found; for he is reputed to be out of the protection of all laws. But if the statute of any government declares an offence, committed on board one of their own vessels, to be piracy, such an offence will be punishable exclusively by the nation which passes the statute. In England, the offence was formerly cognizable only by the admiralty courts, which proceeded without a jury, in a method founded upon the civil law. But, by the statute of Henry VIII, c. 15, it was enacted that piracy should be tried by commissioners nominated by the lord chancellor, the indictment being first found by a grand jury of twelve men, and afterwards tried by another jury, as at common law. Among the commissioners, there are always some of the common law judges. In the U. States, pirates are tried before the circuit court of the U. States. Piracy, in the common sense of the word, is distinguished from privateering, by the circumstance that the pirate sails without any commission, and under no national flag, and attacks the subjects of all nations alike; the privateer acts under a commission from a belligerent power, according to certain maritime laws. The only instances in which privateering has been recognised by any nation as unlawful, is contained in the treaty of the U. States with Prussia, in 1785. The Barbary powers, notwithstanding some doubts which formerly existed, have been regarded, for a century past, as lawful powers, and not as pirates. They have all the insignia of regular nations, and are competent to maintain the European relations of peace and war.

Piracy, Literary. (See *Copyright*, and *Literary Property*.)

Piræus. (See *Athens*.)

Piranesi, a celebrated architect, engraver and antiquary, was born at Venice, probably about 1711, although one account says in 1721. He passed the greater part of his life at Rome. His earliest work, published in 1743, consists of designs of his own, in a grand style, and is adorned with views of Rome. His other works are, *Antichità Romane*, or Roman Antiquities, in 220 plates, with descriptions in Italian (4 vols., folio); *Fasti Consulares Triumphalesque Romanorum; Del Castello dell' Acqua Giulia* (21 folio plates); *Antichità d'Albano e di Castel Gandolfo* (55 plates); *Campus Martius Antiquæ Urbis* (54 plates); *Archi Trionfali, Antichi Tempj ed Amfiteatri* (31 plates); *Trofei d'Ottaviano Augusto* (10 plates); *Della Magnificenza ed Architettura de' Romani* (44 plates); *Architetture Diverse* (27 plates); *Carceri d'Invenzione* (16 plates); and about 130 views of Rome in its present state. His inventions display much grandeur and fertility; but his representations of real objects are not always faithful, on account of the scope which he gave to his imagination. He died in 1778. Two sons, Francis and Peter, settled at Paris, continued his works, now amounting to 23 vols., folio.

Pirithous; son of Jupiter and Dia, wife of Ixion, king of the Lapithæ, and friend of Theseus. He married Dejanira or Hippodamia, daughter of Adrastes, a prince of the Lapithæ, by whom he had Polypœtes. His marriage is famous for the battle of the Lapithæ and Centaurs, occasioned by the attempt of a drunken Centaur (Eurythion) to do violence to the bride, and which resulted in the expulsion of the Centaurs from Pelion. After the death of his wife, Pirithous went to Athens, and, with Theseus, who had also lost his wife, carried off Helen from Sparta. Having reached Athens, they cast lots for her, on condition that he who was successful should aid the other in procuring a wife. She fell to Theseus, whom Pirithous required to aid him in the rape of Proserpine, wife of Pluto. The two friends, therefore, descended into the infernal regions, but having sat down to rest, they were unable to rise again. Theseus (q. v.) was afterwards set free by Hercules, but Pirithous remained in the infernal world, loaded with 300 chains, or, according to some, was torn in pieces by Cerberus.

Piron, Alexis, a celebrated French wit, poet and dramatist, born at Dijon, in 1689, was the son of an apothecary. He took his degrees in the faculty of law at Besançon, and was about to be admitted to practice, when his parents experienced a reverse of fortune, which obliged him to relinquish his design. He remained some time at Dijon, leading a life of dissipation, in the midst of which his literary efforts were confined to the production of a few satirical epigrams. At length he became clerk to a financier, whom he quitted to go to Paris, where he was employed as a copyist, with a salary of forty sous a day. This irksome situation he soon relinquished; and it was with difficulty that he obtained the payment of his pitiful salary. He was next engaged to write for the Theatre of the Comic Opera, and his first piece was *Arlequin Deucalion*, composed in two days. His success induced him to persevere, and, after writing several pieces, he produced, in 1738, his *chef-d'œuvre*, *Métromanie*, a comedy, which Laharpe characterizes as excelling in plot, style, humor and vivacity almost every other composition of the kind. Piron afterwards wrote *Fernand Cortes*, a tragic drama, and some other pieces, acted at the *théâtre de la Foire*. In the latter part of his life, he made repeated attempts to gain admission into the French academy; but the satirical effusions in which he had indulged himself had made him so many enemies among the academicians, that he was finally rejected. He revenged himself for his disappointment by calling the academy *Les invalides du bel esprit*, and composing the humorous epitaph,

> *Ci-gît Piron, qui ne fut rien,*
> *Pas même académicien.*

The king, however, at the solicitation of Montesquieu, gave Piron a pension of 1000 livres. His death took place Jan. 21, 1773. His *bons mots* were collected and published in one volume 18mo; and his *Poésies Diverses* were printed at Neufchatel, 1775, and 1793, 8vo. His works entire form seven volumes octavo, in the edition of Rigoley de Juvigny, 1776.

Pirouette, in dancing; a rapid circumvolution upon one foot, which, on the stage, is repeated by the dancers many times in succession.—In riding, it is the sudden, short turn of a horse, so as to bring his head where his tail was.

Pisa, one of the most ancient and beautiful cities of Italy, in the grand-duchy of Tuscany, stands in a fertile plain, about eight miles from the entrance of the Arno into the sea. The air is tolerably healthy and mild. Instead of the 150,000 inhabitants, which it formerly contained, the city now numbers scarcely 17,000. Silence and solitude reign here, as in the other great cities of Italy, which have finished their part in history. The Arno divides the city into two nearly equal parts, connected by three bridges. The two great quays (*lungarno*) are adorned with edifices in the noblest style, whose fortified appearance recalls the warlike days of the republic. The streets are mostly wide, straight and well paved; but the grass, growing between the stones, is a melancholy mark of depopulation. Among the eighty ecclesiastical buildings, the cathedral, built in the eleventh century by a Greek architect, strikes one with awe, and contains many remarkable monuments. Behind the cathedral stands the celebrated leaning tower, built in the twelfth century, by a German of the name of William: its inclination amounts to about fifteen feet from the perpendicular. It is a round tower of marble, consisting of eight rows of pillars, one above another, and is 168 feet in height. It has been doubted whether this beautiful tower has actually sunk, or whether it was designedly built with its present inclination. Opposite the cathedral stands the *battisterio*, or baptistery, which is of the same age, round, and adorned with pillars. It was built by Dioti Salvi. Between the two is the Campo Santo, one of the greatest wonders of art in Italy. It is an old church-yard, the earth of which the Pisans brought from Jerusalem, surrounded by Gothic halls, the walls of which are painted in fresco by the most celebrated early artists, among whom are Memmi, Orcagna, &c. But all are eclipsed by the inimitable paintings of Benozzo Gozzoli. Carlo Lasinio, superintendent of the Campo Santo, has published fine engravings of these pictures, *Pitture al Fresco del Campo* (1812). There is also here a large collection of Etruscan and Roman antiquities, particularly urns and *sarcophagi*. Among the other churches, we must mention the church Madonna della Spina, distinguished for its delicate architecture, and the church S. Stefano, built in a more modern style, which, with the neighboring palace, belonged to the military order of St. Stephen, that once resided here. Several palaces, and the Loggia de' Mercanti, are worthy of note. An edifice is still shown as the tower of famine, in which Ugolino della Gherardesca perished (in 1283), with his children. The original tower, however, no longer exists. The family of Gherardesca (q. v.) was still extant at Pisa in 1798. The university is old, and has always possessed celebrated professors. The observatory and the botanical garden are in the best condition. There are in the city an *accademia Italiana*, a physico-medical college, cabinets of art, and, in the vicinity, an agricultural establishment,

S. Rossore, with a collection of breeding-horses, a colony of 200 camels, and a herd of 1800 wild cows. The refinement and kindness of the inhabitants make a residence in Pisa delightful to a stranger. At a little distance from the city, at the foot of Monte S. Giuliano, and named after this mountain, are the Pisan baths. Twelve warm sulphur springs are enclosed in large, convenient buildings, in which provision is made for all the wants of the visitors. The baths are not, however, in so high repute as they were in the middle of the last century. The splendid Carthusian monastery near Pisa is also worth seeing. The trade and manufactures of the place are of little importance. Large quantities of oil, which is but little inferior in quality to the oil of Lucca, are made here; the fields and hills are well cultivated, and the marble quarries in the neighborhood are among the finest in Italy. Pisa was a flourishing republic in the middle ages, and owed its prosperity to the great love of liberty, and the active, commercial spirit, which distinguished its citizens. From the Saracens the republic conquered Sardinia, Corsica, the Baleares, and was styled the queen of the seas. Its territory on the Tyrrhene shore comprehended the Maremma from Lerici to Piombino, which was at that time cultivated and very fruitful. By sea the rival of Venice and Genoa, she founded colonies in the Levant, and sent forty vessels to aid the king of Jerusalem. Faithful as a zealous Gibeline to the emperor, involved in a bloody struggle with the Guelfic Florence, with Lucca and Sienna, which adhered to the pope, an object of jealousy to all her neighbors, overcome by Genoa in a bloody naval battle, and torn by the internal dissensions of powerful families, she finally sunk under the jealousy and hatred of Florence. Ugolino, however, reigned but a short time over the city, which had been stripped of her fortresses. The courage with which 11,000 Pisans preferred to suffer sixteen years of severe imprisonment, rather than surrender a fortified place to the enemy, sustained for a time the spirit of the republic, which, with its own arms, defeated the army of the Guelfs of all Italy. But, being exhausted, it finally put itself under the protection of Milan, and was soon after sold to duke Galeazzo Visconti, from whose successors Florence obtained it by purchase, in 1406. The city was compelled to surrender by famine; and those disposed to resist were kept in obedience by force. The larger part of the citizens emigrated. But after eighty-eight years of oppression, when Charles VIII of France made an expedition into Italy, the ancient pride of Pisa was aroused, and, for fifteen years, she fought gloriously for her liberty. Simon Orlandi called his fellow citizens to arms, and the people, under the protection of Charles VIII, who took possession of Pisa by a treaty with Florence, adopted a constitution of their own. Then began an obstinate war between Florence and Pisa. The inhabitants of the latter city, with the assistance of the French garrison, reconquered the ancient territory, and defeated the Florentine mercenaries. Their courage foiled every effort of their former sovereigns. When the French garrison departed, they took the oath of allegiance to the French king as their protector. Pisa now became a place of importance. Princes and republics negotiated, some for, some against the continuance of the revived republic. Abandoned at last by all, the Pisans swore to perish rather than submit to their hereditary enemy. Florence had already made itself master of the Pisan territory, and, on the last of July, 1499, the siege of the city was commenced with such ardor, that, in a fortnight, the Florentines hoped to have it in their power. But the females of Pisa worked day and night to repair the walls; and the enemy having taken a castle by storm, they exhorted their disheartened citizens to die rather than become the slaves of the Florentines. By this spirit the city was saved, and the enemy, after great loss, raised the siege, September 4. The Pisans now changed their city into a formidable fortress. Even an army sent by Louis XII, king of France (who wished to subjugate Pisa for the Florentines), besieged it in vain. In 1504, the Florentines resumed the siege of Pisa. They attempted to dam up the Arno above the city, but had to relinquish the plan after great expense. A third siege, in 1505, was equally unavailing. The city was finally (June 8, 1509) reduced by famine, and submitted to the Florentines, with an amnesty for the past. Thus Pisa, having frustrated four attacks, and asserted its freedom for fifteen years, fell into the power of the Florentines, and ceased for ever to be independent. On its ruins was founded the power of Tuscany.

Piscataqua, or Pascataqua; the only large river of New Hampshire which has its whole course within the state. It originates from the junction of several small streams in a wide and deep bed, which is formed partly by them and partly by the tide. The names of these streams are Salmon Fall, Cocheco, Bellamy Bank, Oyster, Lamprey, Squamscot and Winnicut. The river joins the ocean two or three miles below Portsmouth, encloses several islands, and forms at Portsmouth one of the best harbors in America.

Pisidia. (See *Natolia.*)

Pisistratus, an Athenian citizen who usurped the sovereignty of his country, was of noble descent, which he himself derived from Codrus, the last king of Athens, and inherited from his father, Hippocrates, a large fortune. He received from nature those qualifications which give influence to an individual, facility of speech, and uncommon vigor of understanding. To these he had added all the learning of his time. On entering public life, he lent his eloquence to the plans of Solon, his maternal relation, for exciting the Athenians to recover Salamis, and accompanied the lawgiver in the successful enterprise against that island. By nature ambitious, he pursued the policy which has so often succeeded in democracies: he gained over the lower classes of the citizens by his affability and unbounded liberality. He relieved their burthens, laid open his gardens for their use, provided for the sick, and caused the dead to be buried. In all his harangues, he was the advocate of civil equality and a democratic constitution. Solon saw through his policy, and expressed his apprehensions of the result. They were but too soon verified. One day Pisistratus appeared in the market-place, with several slight wounds, which he had inflicted on himself, and called upon his fellow-citizens to protect him against certain alleged enemies, who had, as he said, attacked his life on account of his adherence to the democracy. An assembly of the people was immediately summoned, in which one of his friends proposed that a guard should be given him for the security of his person. This proposal was approved, notwithstanding the opposition of Solon. A body-guard, by the aid of which he possessed himself of the citadel of Athens, was given him. He disarmed the multitude, and was now master of the city, while Solon departed from his enslaved country (560 B. C.). But, though Pisistratus, by the manner in which he obtained his power, drew upon himself the reproach of tyranny, his use of power was by no means tyrannical; for no lawful prince ever showed more moderation or more regard for the welfare of the people. He made no attempt to abolish the wise laws of Solon, but confirmed and extended their authority. He always showed the greatest respect for the lawgiver, but his endeavors to induce him to return to Athens were ineffectual. The sovereignty of Pisistratus was not, however, secure. Megacles, who was the head of a hostile party, left Athens with his family, and entered into a correspondence with a third party, for the purpose of overthrowing the power of Pisistratus. Their project succeeded, and Pisistratus was compelled to leave the city. But Megacles soon became dissatisfied with the party to which he had united himself, and offered to reinstate Pisistratus if he would marry his daughter. This proposition he immediately accepted. His return was effected by a stratagem which gives a striking proof of the credulity of the people. A female of a majestic stature was arrayed in the armor of Minerva, and it was proclaimed that the goddess herself had brought back Pisistratus. He entered the city with her in a solemn procession, seated in a magnificent car, and was again established without opposition. This fact is related by Herodotus, who calls it ridiculous. Pisistratus married, as he had promised, the daughter of Megacles, but did not live with her as his wife, as he had already a family. To revenge this insult, Megacles again formed a hostile party, which appeared so formidable to Pisistratus that he retired voluntarily to Eretria. Here he occupied himself with the education of his sons, and took measures to recover his power. In the eleventh year of his second banishment, he entered Attica at the head of an army. Many Athenians who were dissatisfied with the democracy, and remembered his early benefits, joined him. After having surprised and dispersed the troops sent against him, he entered the city, and made himself master, for the third time, of the sovereignty, without bloodshed. Pisistratus continued to rule with his former mildness; but, in order to weaken the popular party, he adopted a measure which was very useful to the state. He forced many of the idle inhabitants to leave the city and cultivate the country around, which by these means was covered with cornfields and olive plantations. He exacted from every one the tenth part of his income and earnings, and thus increased the revenue of the state, which he expended in splendid public buildings. He also endeavored to advance the intellectual cultivation of the Athenians. He established a public library, and collected and arranged the poems of Homer. As he well knew how tyranny was hated, he carefully concealed his power under the exterior of a private citizen. He submitted, like others, to the sentence of the Areopagus, before which he was accused of murder, and conducted himself with as much prudence as clemency. In this way Pisistratus exercised the sovereignty, not as the oppressor but the father of his country, which scarcely ever enjoyed a longer term of peace and prosperity. He died 527 B. C., leaving two sons, Hippias and Hipparchus, to inherit his power, who were not, however, able to preserve it.

Piso; a surname common to many Romans of the Calpurnian family. Lucius Calpurnius Piso, when consul, subdued the seditious slaves in Sicily, and proposed the law *de repetundis*, concerning restitution in cases of extortion, in order to put limits to the avarice of the magistrates in the administration of the provinces. He distinguished himself, as prætor, in Sicily (where the purchase of provisions had been committed to him during a scarcity of corn at Rome) by a rare disinterestedness, so that he received the honorable appellation of *Frugi* (the honest). Another Piso afterwards filled the office of consul with Gabinius, in Cicero's time, and showed himself particularly hostile to that great man, who, in a speech which still remains to us, spoke very violently against him. Still later lived the Piso who, under Tiberius, was prefect of Syria, and distinguished himself for his pride, as well as for his odious conduct towards the noble Germanicus, the adopted son of Tiberius, whom he is said to have taken off by poison.

Pistachia Tree; a small tree, with heavy, crooked limbs, somewhat resembling the walnut in foliage, indigenous to Syria and the neighboring parts of Asia, and now cultivated in many parts of the south of Europe. The fruit, which forms a considerable article of commerce, is a thin-shelled, oval and acuminate nut, about as large as an olive, and has a very agreeable flavor. These nuts are disposed in racemes, and are usually produced in profusion. Michaux recommends the introduction of this tree into West Tennessee and the Southern States. It flourishes in the same soil and climate as the olive—in dry, calcareous or stony grounds, and shuns a sandy and humid soil. As the plant is diœcious, care should be taken, in forming plantations, to allot one barren to five or six fertile plants; and, to avoid mistake, young grafts, stocks, or suckers, from the root of an old tree, may be employed. The flowers of both sexes are small, greenish, and inconspicuous. From a second species of pistachia is obtained the mastic of commerce. (See *Mastic.*)

Pistoia (anciently *Pistoria*); a provincial town of Tuscany, six and a half leagues north-west of Florence, a bishop's see, on a branch of the Arno; lat. 43° 56 5″ N.; lon. 10° 55′ 12″ E.; with 9150 inhabitants. In the neighboring mountains copper is found, also rock-crystal, called *diamond of Pistoia*; and inflammable gas issues from the earth. Pistoia was a republic in the middle ages, and lost its liberty with Pisa, in the beginning of the fifteenth century. It is a place often mentioned in the history of Florence. It is said that the first pistols were made here. Many straw hats are manufactured in this place.

Pistol; a small hand gun, of a structure too well known to require particular description. Pistols are of various sizes, some being so small that they may be deposited in the waistcoat pocket. These are called *pocket pistols*. Others, such as duelling and horse pistols, are sometimes nearly half as long as a carbine. Pistol barrels are oftentimes rifled, and have frequently the addition of a sight. The best pistols are manufactured at London; those of an inferior kind at Sheffield and Birmingham. The stocks of the pistols intended for the Turkey trade are usually inlaid with silver, gold, mother of pearl, &c., and are, on the whole, far more costly than those sent to any other part of the world. Pistols, if well mounted, bring high prices at Constantinople and Smyrna. (For the origin of the name, see *Pistoia.*)

Pistole; the name of a coin and imaginary money, in use in several parts of Europe, more especially in Spain, Italy and Switzerland. (See *Coins.*)

Pitcairn's Island; in the south Pacific ocean, lat. 25° 4″ S., lon. 133° W., six miles long and three broad, covered with wood, of a fertile soil, and fine climate, but having neither river nor harbor. It was discovered by Carteret in 1767, when it was uninhabited, but was settled in 1789, by some of the mutineers of the English ship Bounty. The Bounty, under the command of lieutenant Bligh, had been sent out to introduce the bread-fruit tree from Otaheite into the West Indies, but was taken possession of by the crew, who set their officers adrift in a boat. Bligh and his companions arrived safely in the island of Timor, after a voyage of

1200 leagues. The next year the admiralty sent captain Edwards, in the Pandora, to Otaheite, in search of the twenty-five mutineers, who were supposed to have returned thither. At his arrival in the island (1791), four of them came on board, and ten others, who were living there, were taken the next day; they were carried home, with the exception of some who were lost by the wreck of the Pandora, and most of them were executed. According to their accounts, the mutineers, under Christian Fletcher, sailed for Toobooai, one of the Society islands, with the intention of settling there, and afterwards returned to Otaheite, where they took on board a supply of fruit trees and twenty-four Otaheitans, with whom they went back to Toobooai. Here they built a fort; but disputes among themselves and with the natives compelled them to abandon their project of forming a settlement, and Christian, finding his authority gone, proposed to return to Otaheite. Those who wished to remain were landed, and Christian, with the eight remaining mutineers and fifteen Otaheitans, of whom eleven were women, left the island. Nothing was known of their fate until 1808, when captain Folger, of Boston, having touched at Pitcairn's island, was surprised to find it inhabited. After landing, he received an account of the colony from an old English sailor, who called himself John Adams, but who is supposed to have been Alexander Smith, the only surviving individual of the crew of the Bounty. Christian had destroyed the ship soon after their arrival. A few years afterwards, the English were all killed by the Otaheitans, except three, who concealed themselves; the Otaheitans quarrelled among themselves, and were all killed or died of their wounds. Two of the Englishmen died soon after, and Adams, or Smith, with several women and children, remained the only inhabitants of the island. Captain Folger gave a circumstantial account of his discovery in 1813. In 1814, the island was visited by the British frigates Briton and Tagus, and has been repeatedly visited since. By the visitors in 1814, the inhabitants were thus described:—"This interesting new colony now consisted of about forty-six persons, mostly grown up young people, besides a number of infants. The young men, all born in the island, were very athletic, and of the finest forms, their countenances open and pleasing, indicating much benevolence and goodness of heart; and the young women were objects of particular admiration; tall, robust, and beautifully formed, their faces beaming with smiles and unruffled good humor, but wearing a degree of modesty and bashfulness that would do honor to the most virtuous nation on earth; and all of them, both male and female, had the most marked English features. Their native modesty, assisted by a proper sense of religion and morality, instilled into their youthful minds by John Adams, the leader of the colony, has hitherto preserved these interesting people perfectly chaste. The greatest harmony prevails among them. But what was most gratifying to the visitors, was the simple and unaffected manner in which they returned thanks to the Almighty for the many blessings they enjoyed. Their habitations are extremely neat; and the village of Pitcairn forms a pretty square." John Adams died in 1830. Recent accounts state that the island was abandoned not long after, on account of the scarcity of water, and that the whole colony of about sixty individuals had arrived at Otaheite.

PITCH. (See *Pine.*)

PITCH; the acuteness or gravity of any particular sound, or of the tuning of any instrument. Any sound less acute than some other sound, is said to be of a lower *pitch* than that other sound, and *vice versa.* The *opera pitch* is tuned above most others, and is therefore said to be higher than the common *concert pitch.* (See *Acoustics.*)

PITCHER PLANT. (See *Nepenthes.*)

PITCH-PIPE; an instrument used by vocal practitioners to ascertain the *pitch* of the key in which they are about to sing. It is blown at one end like a common flute, and being shortened or lengthened by a graduated scale, is capable of producing, with mechanical exactness, all the semitonic degrees within its compass.

PITCH ORE. (See *Uranium.*)

PITCHSTONE, PEARLSTONE, PUMICE, and OBSIDIAN. All these substances, formerly regarded as distinct, are now included under one species in mineralogy, the character of which is the following: cleavage none; fracture conchoidal, sometimes highly perfect, sometimes less distinct; in the granular masses, the fracture is more or less uneven and splintery; lustre vitreous and resinous; colors black, brown, red, yellow, green, gray and white; hardness between that of feldspar and quartz; specific gravity 2.3. The variety called *obsidian* possesses the most perfect conchoidal fracture and the highest degree of lustre. Agreeably to the degree of transparency, it is divided into *transparent* and *translucent* obsidian; the former of which is sometimes called *marekanite*. If the high perfection of the conchoidal fracture disappears, the mineral takes the name of *pitchstone*. Pitchstone often contains those faces which are called the faces of distinct concretion; if these are numerous, variously curved, and contain but little matter between them, *pearlstone* is formed. The obsidian is often vesicular, the cavities being small, and keeping a constant direction; if there are a great many of them of larger sizes, the whole mass becomes apparently very light, the original color disappears, and gives place to a pearly or silky lustre; and thus arises the variety called *pumice*. The analysis of these varieties presents the following results:

	Obsidian.	Pitchstone.	Pearlstone.	Pumice.
Silex	72.00	73.00	75.25	77.50
Alumine	12.50	14.50	12.00	17.50
Potash	10.	0.00	4.50	3.00
Soda		1.75	0.00	
Oxides of iron and manganese	2.00	1.10	1.60	1.75
Lime	0.00	1.00	0.50	0.00
Water	0.00	8.50	4.50	0.00

Before the blow-pipe, they all melt with more or less facility into a vesicular glass, or they yield an enamel, according to the fusibility of their ingredients. The geological relations of these species are very remarkable. Pitchstone forms mountain masses, and is generally in close connexion with porphyry. Many of the other varieties occur under similar circumstances. Pitchstone veins sometimes occur in sandstone. Pumice and obsidian are among the products of volcanoes. The southern countries of Europe, South America, Mexico and the Sandwich islands are rich in the varieties of pitchstone. Pearlstone, in particular, occurs in Hungary, and at Cabo de Gates, in Spain. Obsidian is very frequent in Iceland and Mexico; pumice in the Lipari islands, Teneriffe and Peru. Obsidian is employed for mirrors, vases, snuff-boxes, &c. In Mexico and the island of Ascension, very sharp fragments are used as tools and weapons. Pumice yields a well known material for grinding and polishing, and is also employed for a filtering stone.

Pith. (See *Medulla.*)

Pitt, Christopher, an English poet, born in 1699, at Blandford, received his education at Winchester, whence he was elected, upon the foundation, to New college, Oxford. In 1722, a relation presented him to the family living of Pimperne, where he passed his life in the performance of his clerical duties, and the pursuit of elegant literature. He is principally known by his translation of the Æneid and of Vida's Art of Poetry. Mr. Pitt died in 1748. (See Johnson's *Lives of the Poets.*)

Pitt, earl of Chatham. (See *Chatham.*)

Pitt, William, second son of the earl of Chatham, was born May 28, 1759. He received a private education in the first instance, and, at the age of fourteen, was entered of Pembroke hall, Cambridge. On quitting the university, he visited France, and studied at Rheims, and, on his return, became a student of Lincoln's inn; and, in 1780, was called to the bar. He attended the western circuit once or twice, when he was introduced into parliament by sir James Lowther, as representative for his borough of Appleby. His maiden speech was delivered in support of Mr. Burke's financial reform bill, and he also spoke in favor of a reform in parliament. On the breaking up of the Rockingham administration, he became chancellor of the exchequer, at the age of twenty-three, under the premiership of the earl of Shelburne. A general peace soon followed, which being made the ground of censure by a strong opposition, the cabinet was dissolved, and the Fox and North coalition took its place. On his retirement from office, Mr. Pitt resumed his efforts for a reform in parliament, and submitted three specific motions on the subject, which, although supported by Mr. Fox, then secretary of state, were rejected. On the failure of the India bill of the latter, which produced the dismissal of the coalition, Mr. Pitt, although at that time only in his twenty-fourth year, assumed the station of prime minister, by accepting the united posts of first lord of the treasury and chancellor of the exchequer. Although strongly supported by the sovereign, he stood opposed to a large majority of the house of commons, and a dissolution took place in March, 1786. At the general election which followed, the voice of the nation appeared decidedly in his favor, and some of the strongest aristocratical interests in the country were defeated; Mr. Pitt himself being returned by the university of Cambridge. His first measure was the passing of his India bill, establishing the board of control, which was followed by much of that fiscal and financial regulation, which gave so much *éclat* to the early period of his administration. The establishment of the delusive scheme of a sinking fund followed in 1786. Whatever may be the utility of the sinking fund in the regulation of funded sale and purchase, as a miraculous mode of liquidating the public debt, its pretensions are now set at rest for ever. A commercial treaty with France followed in 1787, and soon after, the minister began to exhibit that jealousy of Russian aggrandizement, which, but for the manifest unpopularity of hostilities, might have involved the two countries in war. A similar spirit was displayed towards Spain, respecting the free trade at Nootka sound; and in defence of the stadtholder against the machinations of France. In 1788, Mr. Pitt resisted the doctrine of the opposition, that the regency, during the king's indisposition, devolved upon the prince of Wales by right. The minister maintained, that it lay in the two remaining branches of the legislature to fill up the office, but that the prince could not be passed over in nominating to this post. By the adoption of this principle he was enabled to pass a bill restricting the regent's power, which the king's recovery rendered unnecessary. One of the most momentous periods in modern history had now arrived. The French revolution broke out, and produced a vibration in every neighboring state; and a sensation was created in Great Britain, which, previously excited as she had been on subjects of parliamentary and general reform, in a great measure broke up the previous party divisions. A war against French principles was declared on the one side, by which all amelioration was opposed; while, on the other, the friends of rational reformation found themselves confounded with ignorant and heated men, who espoused some of the wildest and most visionary notions of the innovators of France. To make alarm as effective as possible; to encourage the dissemination of high principles of government, and involve in common obloquy all measures of opposition, and all projects of reform; to augment, according to the apparent urgency of circumstances, restrictions upon personal liberty, and make temporary sacrifices of the spirit of the constitution to what he deemed the public safety,—such, according to one party, were the principles of Mr. Pitt's government at this crisis; while others would have had him gone much farther, and, purely on a conservative principle, would, in a constitutional sense, have left him nothing to preserve. The details of the momentous contest which followed, form no subject for the biographer. Great Britain was successful by sea; but, during the life of Mr. Pitt, the conflict on the continent was in favor of France. The suspension of cash payments in 1797, the necessity of attending to home defence, the mutiny in the fleet, and the accumulation of the public burdens, which still press so heavily on the nation, were some of the bitter fruits of this struggle; which were, however, on the other hand, alleviated by a commercial monopoly, that, assisted by the temporary operation of an unlimited paper issue, materially modified the consequences both in form and in fact. In 1800, the Irish union was accomplished. Soon after the accomplishment of this event, the hopeless aspect of the war with France began to turn the national attention towards peace; and Mr. Pitt determined to retire. The alleged reason for his retreat, not publicly avowed, but communicated to his friends, was the opposition of the king (see *George III*) to all further concession to the Irish Catholics, which had been promised by the articles of the union. (See *Catholic Emancipation.*) He accordingly resigned his post in 1801; and the crisis of revolutionary fervor having for some time abated, he carried with him into retirement the esteem of a powerful party, which hailed him as "the pilot that weathered the storm." The peace of Amiens succeeded; and the Addington (q. v.) administration, which concluded it, Mr. Pitt supported for a time, and then joined the opposition, and spoke on the same side with his old antagonist Mr. Fox. The new minister, who had renewed the war, unable to maintain his ground, resigned; and, in 1804, Mr. Pitt once more resumed his post at the treasury. Returning to power as a war minister, he exerted all the energy of his character to render the contest successful, and found means to engage the two great military powers of Russia and Austria in a new coalition (q. v.), which was dissolved by the battle of Austerlitz. Mr. Pitt, whose state of health was previously declining, was sensibly affected by this event; and his constitution, weakened by a hereditary gout, and injured by a too liberal use of wine, by way of stimulant, rapidly yielded to the joint attack of disease and anxiety. The parliamentary attack upon his old associate, lord Melville (see *Dundas*), not wholly parried either by ministerial influence or the merits of the case, is thought to have deeply wounded his feelings, and completed his mental depression. A state of extreme debility ensued, which terminated in death, encountered with great calmness and resignation, January 23, 1806. As a minister, it would be impossible to sum up the character of Mr. Pitt in terms that would not encounter a host of predilections or prejudices on every side. It is, however, generally conceded, that his genius was better adapted to the regulative process of peaceable and domestic government, than to the arrangement and conduct of that warlike exertion, which his policy entailed upon the country. At the same time, it must be confessed, that he had to encounter overwhelming energies—the result of a social crisis of most extraordinary character. If, therefore, he can be acquitted of a want of foresight in volunteering such a conflict, the result of the warfare, in establishing French ascendency on the continent, may be regarded as the effect of causes which no abilities could have controlled. According to the theories with which he set out in life, and as the son of lord Chatham, much constitutional and political improvement was to be expected from him; and much prudent and useful regulation he certainly effected. In higher points, he was, perhaps, more the man of expediency than of principle. It has been seen how he advocated and dropped the subject of parliamentary reform. In a similar spirit, he spoke and voted in favor of the abolition of the slave-trade; but although supported by the voice of a decided national majority, he would not make a ministerial measure of it, as was done without difficulty by his immediate successor; nor can we trace any decided social amelioration to his influence. As a financier, he was expert in practice rather than scientifically grounded; while the waste and profusion of his warlike expenditure were extreme, and will long be felt in their consequences. Although love of power was certainly his ruling passion, he was altogether above the meanness of avarice, and his personal disinterestedness was extreme. So far from making use of his opportunities to acquire wealth, he died involved in debt, which negligence and the demands of his public station, rather than extravagance, had led him to contract; his tastes being simple, and averse from splendor and parade. Mr. Pitt possessed no advantages of person and physiognomy; a loftiness approaching to arrogance was the habitual expression of the latter in public, although in private circles he has been described as complacent and urbane. His eloquence, if not more elevated or profound, was, upon the whole, more correct than that of any other orator of his time, and remarkably copious and well arranged. Although neither illuminated by the flashes of genius which characterized his father's oratory, nor by the imagination which distinguished the eloquence of Burke, it was more uniformly just and impressive than that of either; while the indignant severity and keenness of his sarcasm were unequalled. On the whole, Mr. Pitt was a minister of commanding powers, and still loftier pretensions; and he died in possession of the esteem of a large portion of his countrymen. A public funeral was decreed to his honor by parliament, and a grant of £40,000 to pay his debts.—The reader may consult Gifford's *Life of Pitt* (3 vols., 4to., London, 1809) or the later work of his tutor, doctor Tomline (Prettyman), bishop of Winchester (London, 1821), a review of which, in the 35th volume of the Edinburgh Review, gives the Whig opinions concerning Mr. Pitt.

Pittacus of Mitylene. (See *Seven Wise Men.*)

Pittsburg; a city and capital of Alleghany county, Pennsylvania, 230 miles west-north-west of Baltimore, 297 west-by-north from Philadelphia, and 225 from Washington; lat. 40° 32′ N.; lon. 80° 8′ W.; population, in 1800, 1565; in 1810, 4768; in 1820, 7248; in 1830, 12,542. Pittsburg is situated in a beautiful plain, on a point of land where the Alleghany and the Monongahela unite to form the Ohio. The site of the town was early regarded as very important, and was selected by the French for fort Du Quesne. Afterwards this was called fort Pitt. In 1760, a considerable town rose about the fort; but the present town was commenced in 1765. The Indian wars and other troubles of the western country prevented its rapid growth till 1793. It is now the rival of Cincinnati in manufactures, and, in population, wealth and importance, is the third town in the Mississippi Valley. Pittsburg is well provided with houses of worship for various sects, has a public library, three or four banks, and a small theatre. The manufacturing establishments are probably more numerous and extensive than in any other town in America, in proportion to its population. In its manufactures, it resembles Birmingham in England. Their annual value was estimated, in 1828, at $2,000,000. In general, the town is well built; but the use of pit coal, in the houses and manufactories, gives a general dinginess of appearance to the town, from its dust and smoke. The coal is found in the hills in the immediate neighborhood of the town; and it costs little more than the digging. There is no fear that the supply will either fail or become difficult to procure. The inhabitants are a mixture of Germans, Irish, English, Scotch, French, Swiss, and many other nations, and are distinguished for industry and economy. The market is abundantly supplied, but the cost of articles is much higher than in the towns farther west on the Ohio. At low stages of the water, flat and keel boats cannot always descend the river from Pittsburg; and this circumstance diverts a part of the travel to the western country to Wheeling; still a great part of it centres at Pittsburg, and, in high stages of the water, steam-boats are continually arriving and departing. The distance from Pittsburg to New Orleans, by the river, is about 2000 miles. Every part of this region depends much on Pittsburg for supplies of machinery, cutlery, and many other manufactures. A literary institution was established here in 1820, called the *western university*. It has four instructers, and fifty-three students. On the banks of the Alleghany, near Pittsburg, are the villages of Alleghany and Lawrenceville; and on the Monongahela are Birmingham and Manchester. The surrounding country is very pleasant and fertile.

Pittsfield, a post-town of Berkshire county, Massachusetts, at the junction of the principal branches of Housatonic river, contains a bank, a medical institution, and several valuable manufactories. The medical institution has six professors and eighty-five students; population, in 1830, 3570.

Piu (*Italian*); more; as *più presto*, quicker; *più piano*, more soft.

Pius II. (See *Piccolomini*.)

Pius VI, pope, whose secular name was *John Angelo Braschi*, was born at Cesena, in 1717. On the death of Clement XIV, in 1775, he succeeded to the papal throne, and shortly after made a reformation in the financial department, and also improved the museum of the Vatican. But the greatest of his undertakings was the draining of the Pontine marshes, a district between the Apennine mountains and the sea, overflowed with water exhaling pestilential effluvia, which gave rise to numerous diseases, and depopulated the surrounding country. While, however, this pontiff was successful in his domestic administration, he had the mortification to witness the absolute decay of the temporal power of the holy see. In 1782, he made a visit to the emperor Joseph II, at Vienna, to endeavor to dissuade him from the prosecution of some ecclesiastical reforms which he meditated; but the journey was wholly useless, though the death of the emperor put a stop to his schemes. Pius encountered many other misfortunes. In France, he witnessed the confiscation of the property of the church, and the suppression of the religious orders, by virtue of the decrees of the national assembly; in Germany, the congress of Ems, for the abolition of the nunciature, in 1785; in Naples, the contempt of his authority, by withholding the customary tribute of a horse; and, in 1791, he lost Avignon and the country of Venaissin, which were reunited to France. But all this was only the prelude to greater adversity. In the first coalition against France, the pope ranged himself among the enemies of the republic. In January, 1793, Basseville, the French secretary of legation, was massacred during a popular commotion at Rome. After the victories of Bonaparte in Italy, in 1796, general Augereau marched into the territories of the pope, who, unable to resist, was glad to accept an armistice, which was signed at Bologna, June 13. The pope having renewed hostilities, Bonaparte attacked and beat his troops at Senio, Feb. 2, 1797, and proceeded towards Rome. He stopped, however, to treat with ministers sent by his holiness, and, Feb. 19, was signed the treaty of Tolentino, by which the pope lost Romagna, Bologna and Ferrara. Dec. 28, 1797, in consequence of another commotion, in which general Duphot was killed, Joseph Bonaparte, the French ambassador, quitted Rome. An army, commanded by general Berthier, entered that capital, Feb. 10, 1798, and, on the 15th, proclaimed the establishment of the Roman republic, governed by consuls, a senate and a tribunate. The pope, after this deprivation of his authority, was conveyed to France as a prisoner, and died at Valence, Aug. 29, 1799. In 1802, his body was removed to Rome, and solemnly interred.

Pius VII (Gregory Barnabas Chiaramonti) was born at Cesena, in 1742, and, at the age of sixteen, was received into the order of Benedictines. After serving as teacher in several abbeys, he became professor of philosophy in Parma, and subsequently of theology in Rome, where his fellow-townsman, Pius VI, created him bishop of Tivoli, and, in 1785, cardinal and bishop of Imola. By the peace of Tolentino, he became a citizen of the Cisalpine republic, and displayed an inclination to republican principles. It appears to have been under French influence that he was chosen to fill the papal chair, March 14, 1800, after which his notions underwent a total change. His domestic administration was conducted with a rigorous economy and a wise policy in the encouragement of commerce and manufactures. In 1801, he concluded a concordate (q. v.) with France; in 1804, revived the order of Jesuits in Sicily, but was obliged to consent to the sale of the church lands by the Spanish court. Pius, desirous of saving the wreck of the papal power, complied with the invitation of Napoleon to be present at the coronation; but he was treated with little respect, either by the Parisians or by the emperor, who crowned himself and the empress with his own hands. The pope, finding that he was to expect no favors, refused to appear at the coronation in Milan, and was received by his subjects, on his return (April 4, 1805), with loud expressions of dissatisfaction. The reforms of Joseph in Naples, and the secularizations in Germany, were new sources of mortification, and, having offended Napoleon by refusing to recognise his brother Joseph as king of Naples, and to shut his ports against English ships, he was obliged to witness the occupation of Rome by French troops (Feb. 2, 1808). The papal cities were incorporated with the kingdom of Italy, and the firm resistance of Pius to these aggressions, and his threat of excommunicating the emperor, could not prevent Rome from sharing the same fate (May 17, 1809). June 10 and 11, the pope issued two bulls of excommunication against all violators of the papal territory. July 6, he was arrested in his chamber by French troops, and, on refusing to renounce all claims to temporal power, conducted to Florence, and thence to Savona. In his confinement, he rejected with firmness the offers of Napoleon, and refused to confirm the bishops appointed by the latter. In 1812, he was removed to Fontainebleau, where Napoleon obliged him to accede to a new convention (Jan. 23, 1813), by which he promised to confirm the bishops; but the emperor having, contrary to agreement, proclaimed the concordate before its completion, Pius, whose consent had been entirely conditional, refused to concur in any concordate that should not settle all disputed points. He was therefore treated as a prisoner; but it is not true that he was personally abused by Napoleon. In 1814, the pope was released, and restored to the possession of all the papal territories except Avignon and Venaissin, in France, and a narrow strip of land beyond the Po. Although attached to the old hierarchal policy, as appears from his bulls and briefs against the distribution of the Bible, against Catholic Switzerland, &c., yet none of his plans for restoring the old state of things, except the revival of the Jesuits, Aug. 7, 1814, were successful. The concordates with France, Bavaria and the Two Sicilies, and the convention with Prussia, were, however, triumphs of the policy of the Roman court. His administration, which was moderate and wise, was much indebted for its character to cardinal Consalvi (q. v.), his intimate friend and minister. Rome became again not only the refuge of fallen princes, and proscribed families, but the seat of the fine arts. Pius VII died in consequence of a fall, July 6, 1823, and was succeeded by Leo XII. (q. v.) In his exterior, he was simple; in disposition, devout, benevolent and mild.—See Gaudet's *Esquisses Historiques et Politiques sur Pie VII* (Paris, 1824); and the *Storia di Pontificato di Pio VII* (Venice, 1815).

Pius VIII (Francis Xaviero Castiglione) was born at Cingolia, a small town in the States of the Church, in 1759, of poor but respectable parents. He was early distinguished for his industry, talents and learning, and, having entered the church young, passed through all the orders of the hierarchy, having been created cardinal by Pius VII, and, March 31, 1829, unanimously elected pope by the conclave of cardinals, on the death of Leo XII. (q. v.) Pius VIII died December, 1830, and was succeeded by Clement XVI.

Pizarro, Francisco; the name of a celebrated Spanish adventurer, one of the conquerors of the new world. His origin and early habits were sufficiently humble, he being the fruit of an illicit connexion between a peasant girl and an hidalgo of Truxillo, in the neighborhood of which place he first saw the light, about the close of the fifteenth century. Receiving neither support nor countenance from his father, he was thrown entirely upon his mother's resources, who, so far from being in circumstances to give him even an ordinary education, employed him as a swineherd, and left him totally illiterate. The spirit of adventure which at that period pervaded Spain, induced him at length to quit his inglorious occupation, and, in company with some other soldiers of fortune, to seek an improvement of his condition by a voyage of discovery towards the newly-found continent of America. In 1525, the adventurers, over whom the enterprising disposition and daring temper of Pizarro had gained him considerable influence, sailed from Panama. Diego Almagro (q. v.), a person of as obscure an origin as himself, and Hernandez Lucque, an ecclesiastic, being joined with him in the command. The Spaniards arrived, after experiencing several difficulties, in Peru, where, taking advantage of a civil war then raging in that country, they became the allies, and, eventually, the enslavers, of Atahualpa, or Atabalipa, as he is variously called, the reigning inca. Treacherously seizing upon the person of the monarch, at a friendly banquet to which they had invited him and his whole court, they first compelled him to purchase, at an enormous price, a temporary reprieve from a death which they had determined he should eventually undergo; and, having succeeded in extorting from him, it is said, a house full of the precious metals by way of ransom, after a mock trial for a pretended conspiracy, condemned him to be burnt, allowing him to be first strangled, as a reward for becoming a Christian. The news of their success brought a considerable accession of stre[illegible]th from Europe to the invaders; and P[illegible]rro, in order to consolidate his empire, founded, in 1535, the city of Lima, which he intended as the capital of his possessions; but the discord between the chiefs of the expedition, which even a sense of their common danger had from the beginning failed wholly to suppress, when this, their sole bond of union, was withdrawn, broke out into open violence, and, in the struggle which ensued, Almagro, now in his seventy-fifth year, was defeated, taken prisoner, and strangled, by Ferdinand Pizarro, brother to the general. This catastrophe, which took place in 1537, was avenged four years afterwards by the son of the victim, and bearing the same name, who, having organized a conspiracy against the destroyers of his father, broke into the palace at Lima, and, after an obstinate resistance, succeeded in despatching Francisco Pizarro. It is impossible to refuse to this adventurer the credit of considerable military as well as political talent, though the one was sullied by his extreme barbarity, the other by his perfidy and heartless dissimulation. His assassination took place June 26, 1541. (See *Atahualpa*, and *Peru*.)

Pizzicato, or **Pizz.** (*Italian*); an expression particularly applicable to violin music, and implying that the movement, or the passage over which it is written, is to be performed by the fingers instead of the bow.

Place, La. (See *Laplace*.)

Plagiarism. (See *Plagium*.)

Plagium, in the Roman law, is the crime of stealing the slave of another, or of kidnapping a free person, in order to make him a slave. According to German law, it is the getting forcible possession of a man's person, so as to restrain him of his liberty. Metaphorically, it is used for the act of stealing the thoughts and words of another, by publishing them as one's own. Plagiarism, though often practised, is not unfrequently charged where a second invention has taken place, since the most striking figures, for instance, are those which are most likely to suggest themselves to a variety of persons. The idea of raising all the roofs of a city, and looking into the interior of the houses, used by Quevedo and Le Sage, might easily occur to a person unacquainted with their works, as the writer has had occasion to know. Such repetitions of course become more and more likely in proportion as the number of books and educated men increases.

Plague; a disease characterized by a contagious typhus, and entire prostration of the strength, and certain local symptoms, as buboes, carbuncles, and livid spots (*petechiæ*). The latter are in this connexion the peculiar characteristics of the plague, since the former also appear in other malignant diseases. In the beginning, the patient generally experiences great mental dejection and debility of body, slight chills alternating with heats, which are afterwards succeeded by a burning heat within, and a heaviness about the head; then follows stupor; the eyes are glaring, glazed, or wild and sparkling; the face appears whitish and livid, and the patient is melancholy, morose or anxious, faint and delirious. In many cases, nausea and vomiting occur. The thirst is unquenchable, the tongue reddish or yellowish, the speech indistinct. In the progress of the disease, the face often becomes red, the respiration quick and uneasy, and bilious, green or bloody and black matter, is vomited. The delirium often becomes fierce; the urine is sometimes turbid, black, whitish or bloody; and hemorrhages take place, when death does not immediately ensue; buboes appear in the groins, the arm-pits, the parotids, and other places, with carbuncles, small, white, yellowish, black spots, over the whole body. The fear, anxiety and despair which seize the patient with the first appearance of the plague, increase the danger of the disease. Death, in many cases, takes place on the first day, and frequently in a few hours after the appearance, but sometimes not till the second or third day. It is considered favorable if the buboes and carbuncles appear at the same time, are very numerous, and terminate in suppuration. They either terminate in suppuration, or become indurated, are healed or cut out. In regard to the origin of the plague, and the manner in which it is communicated, very different opinions have been entertained, according to the state of medical science. In early times, when calamitous events, the causes of which were not understood, were attributed to spirits and demons, the plague was also ascribed to their influence. At a later period, it was accounted for by changes in the air, poisonous vapors which descended from the atmosphere, or to clouds of insects which were received into the body by inspiration, or in the food, or by absorption through the skin, and thus corrupted the blood. Physicians, according to the tendency of their theories, found the cause in the excess of sulphureous matter in the blood, or in its coagulation or resolution, &c. Many have considered it as not contagious: at present, most have been convinced by experience of its contagious character.* The plague is a specific disease, and can originate of itself only in certain countries. Hot weather, bad air and food, and filthiness, favor its production and propagation.† The nature of the disease seems to consist in a diminution of the vital energy, which may be so rapid and universal, that the component parts of the system, particularly the blood, lose their natural properties, and become corrupted, and life is destroyed before the nervous system is able to counteract the effects. When the progress of the disease is not so rapid, the vital energy which remains is exhausted by febrile excitements and local inflammation. Dissections have shown collections of coagulated or decomposed fluid, black blood, inflammations of large portions of the skin, and carbuncles in great numbers. The buboes discharge an offensive matter, and extend far inward. The carbuncles which precede the approach of death, and contain dead parts, also generally reach deep inwards. When nature possesses sufficient vigor, the inflammations are on the skin rather than in the interior. The buboes soon terminate in suppuration, and the carbuncles, when cut, discharge a less corrupt matter, and fall off. The fever is carried off by a violent sweat: the recovery is slow. When the disease is completely developed, it is contagious: to this is owing the terrible devastations which it causes. There is little doubt that the plague appeared in the most ancient times, particularly where a numerous population was crowded together in the warm climates; but we must not consider every disease as the plague which has been so called by historians, as they often mean by the term nothing more than a malignant disorder prevailing over a considerable extent of country. Among the most famous instances is the plague described in so masterly a manner by Thucydides, which, in the third year of the Peloponnesian war (430 B. C.), ravaged Athens, then besieged by the Spartans. A large number of the inhabitants of Attica had fled into the city: fear, anxiety, want or badness of provision, and the corruption of the air, caused by the crowded state of the population, produced and propagated the plague in the city. Death generally ensued on the seventh or ninth day. The plague in Jerusalem (A. D. 72), when it was besieged by the Romans, is described by Josephus. In Rome, the plague existed (A. D. 77) in the reign of Vespasian; of Marcus Aurelius (170), when it raged over almost all Europe and Asia; of Commodus (in 189), and particularly of Gallienus (in 262), when 5000 persons are said to have died daily in Rome. From that time, the plague has always continued to exist in Italy, Greece, Asia and Africa, and raged particularly in the populous cities, for instance in Constantinople, in the reign of Justinian, in 544, when 1000 grave-diggers are said to have been insufficient for the interment of the dead. This terrible plague continued its ravages for fifty years, with but short intervals. In 565, it appeared under the name of *pestis inguinaria*, in Treves, in 588 in Marseilles. In the seventh century, it was in Saxony. In 823, it prevailed all over Germany, and, from 875 to 877, was particularly malignant in Saxony and Misnia, as was also the case in 964. In the eleventh century, it broke out in Germany at least six times, mostly after or during a famine, and raged with so much violence that it was believed that all mankind was doomed to be swept away by it. This unfortunate belief prevented the taking of effectual means to check it; and apathy in suffering was considered as an act of piety. In some cases, however, the Jews were suspected of having poisoned the wells, as, in our own times, the Hungarian peasantry suspected the nobility, when the cholera morbus swept away so many of the poorer classes: in fact, the ignorant of all ages have been inclined to ascribe general and far-spreading diseases, whose true causes are unknown, or disbelieved by them, to poisoned wells. Thus the writer recollects that, when the ophthalmia broke out in the Prussian army in 1813, many believed the French had poisoned the wells. Similar notions were entertained by many French soldiers during the plague which swept them off in Egypt. In the twelfth century, the plague prevailed in Germany above twenty-five years. In the thirteenth century, it was brought into Europe by the crusaders. From 1347 to 1350 it traversed all Europe, and was then called the *black death*. Since that time it has never raged with so much violence. Boccaccio, in the introduction to his *Decameron*, has given a lively description of its physical and moral effects in Florence in 1348. In the latter half of the fifteenth century, it raged in all Europe, and was accompanied with the most terrible sufferings. The historians of that time give the most horrible picture of distress. In the sixteenth century, the plague again raged, and, in 1563, was introduced into England, by the return of an English army from the continent. At the same time, the sweating sickness prevailed on the continent, which had been imported from England, towards the close of the fifteenth century: it was called in Germany the *English sweat*, and spread from the seaports over Germany, France, the Netherlands, Italy. Though some means were already taken against the plague, for instance, lazarettos built, yet it raged in Europe during the seventeenth century. In 1603, 1625, 1636 and 1665, it made great ravages in England. As the plague never entirely ceases in the East, in Greece, and European and Asiatic Turkey, it has continually been introduced by vessels into the ports of Italy and France, and has also been propagated in Western Europe, through Hungary, Poland and Transylvania. The quarantine rules have not, in general, been strictly observed, and, as late as 1720, a Levantine vessel imported the plague into Marseilles, which soon spread all over Provence. In 1795 and 1796, it extended over the countries on the Turkish frontiers, but was checked by the skill of the physicians.—See *History of the Plague in Sirmia* (in German).—It broke out in 1816 at Noia, a town in Naples. The ancients endeavored to avert the plague by sacrifices, the Christians by processions and prayers. The ancient physicians tried several modes of treatment, among them sweating. The researches of modern physicians have given us a greater insight into the nature of the disease, and of its remedies, than were possessed formerly, when want of courage was quite as fatal as want of knowledge. Precautions against contagion, and when that has once occurred, the speedy expulsion of the poison from the system, the diminution of the internal inflammation, the preservation of the vigor of the arterial blood, the strengthening of the nerves, the promotion of suppuration, the seasonable resolution of the carbuncles, are the main points of the treatment. Baldwin, English consul-general at Alexandria, recommended (1795) oil friction, which has been tried with success. Having observed that the oil porters were never attacked, he concluded that olive-oil was a preservative against the plague; and his expectations were surpassed by the favorable results of his process. As soon as any symptom of the plague is perceived, the body of the patient is vigorously and quickly rubbed with warm oil, and the patient is put to bed. This application is followed by a profuse sweat, which is promoted by elder tea. The friction is repeated once or twice a day, until a violent sweat is produced. If there are buboes, they must be frequently rubbed with oil, until suppuration follows. Doctor Madden, in the work already quoted, gives the following as the results of his experience, both in regard to the nature of the disease, and the treatment of it: "I have given plague the name of *typhus gravissimus*. The symptoms, from the first, are general debility, congestion about the heart, not depending on inflammation, but on the putrescent state of the circulation. It differs little from putrid typhus, except in its duration and eruptions. In every stage of plague, nature appears to lie prostrate under the influence of the poisonous miasma; and, when the patient sinks at last, it is from the want of force in the constitution to drive out the eruptions on the surface. The bubo recedes, or the carbuncle diminishes, or neither appear at all externally; but they have seized on the internal vital organs, and the immediate cause of death has been shown by dissection to have been carbuncles on the liver, lungs, spleen, or mesenteric glands: in short, it appears that the whole glandular system is the seat of the disease. I have seen all the different species of plague enumerated by Russel and the French authors, and I have no hesitation in pronouncing all these different species of plague to be the symptoms of one class only; and I assert, there is but one indication to fulfil, namely, to assist nature to expel the poison by strengthening the exhausted powers of the constitution, and enabling it to throw out the morbific matter. By what means is this to be done?—whether by emetics, by purgatives, by bleeding, by calomel, by mercurial unction, or by oil friction? There is none of these means I have not tried, and out of the first eleven patients so treated I lost nine. I had recourse to another mode of cure: Strong stimulants, diffusable and permanent, I now tried. I commenced with wine and brandy the first moment I saw the patient. Whether the eye was suffused, the cheek flushed, and the skin arid, or the low delirium set in or not, I administered it in the following manner: The first dose was a tumbler of hot brandy and water, about one third spirit. This sometimes was vomited, and again repeated: the second time it usually remained on the stomach, and, in the course of two hours, it generally produced perspiration, even after James's powder had failed. Two or three hours after the first dose, another was exhibited, and the patient would feel less of the burning pain at the heart. If vomiting supervened, it was again repeated; and, during the day, it was now given every four or six hours, according to circumstances. The buboes commonly increased in size, and profuse sweating was often followed by *petechiæ*, or livid spots on the chest: when I saw this, I was always sure of my patient. The second day, I increased the strength of the dose; instead of one third spirit, I gave one half, every eight hours: no intoxication came on, but a lethargic drowsiness was common enough, continuing till the perspiration broke out, or carbuncles appeared externally. If, on the third day, the patient was decidedly better, I kept up the excitement with strong Cyprus wine, in frequent but small doses of two table-spoonsful every two hours; but, if the bad symptoms were unabated, I continued to give the hot brandy and water in increased quantities, till some decided change took place. This active treatment it was seldom necessary to pursue beyond the sixth day; indeed, in plague, if the patient live to the sixth day, he is very likely to recover; but the third day is that which is most to be feared. The only other treatment was once or twice opening the bowels with enemas, for purgatives by the mouth do [illegible] service, and sponging the body frequently with vinegar and water; the head was constantly kept soaked with towels dipped in vinegar, and the buboes were poulticed with very hot cataplasms, sufficiently hot to give pain, and they were allowed to burst spontaneously. With this treatment, at the rate of seventy-five per cent. recovered. In Candia, of nine patients, five recovered; and some of these were almost hopeless cases when I began to treat them. Every thing in plague of course depends on early treatment; for, in a disease which commonly runs its course in three days, there is no time to be lost."

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* Doctor Madden, who paid much attention to this subject, says, "I am thoroughly persuaded that plague is both contagious and infectious; at one period epidemical, at another endemical; in plain English, that the miasma may be communicated by the touch or by the breath; that in one period it is confined to a particular district, and at another is disseminated among the people. But if plague have one form more decided than another, it is the endemic." He considers, however, that the contagion generally derives its violence and virulence from want of ventilation, the plague chambers in the East being generally closed and crowded with patients, by which means the air in them is rendered extremely foul.—See Let. XVIII, in his *Travels in Turkey, Egypt,* &c. (republished Philadelphia, 1830).

† "Both plague and malaria," says doctor Madden, "have their origin in putrefaction, exhaling an invisible vapor, which can only be estimated by its consequences. Malaria originates in the decomposition of vegetable matter. Plague, according to my opinion, originates in the putrefaction of animal matter. The production of both, of course, depends on certain states of moisture and heat, which, in other places, of even a damper climate and higher temperature, are wanting to the generation of these diseases." (Mad. *ub. sup.*)

PLAIN-SONG; the name given to the

old ecclesiastical chant, when in its most simple state, and without those harmonic appendages with which it has long since been enriched by cultivated science.

Plane, Inclined. (See *Mechanics.*)

Planetarium. (See *Orrery.*)

Plane Tree. The Occidental plane, or buttonwood (*platanus Occidentalis*), is, among deciduous trees, the largest production of the American forest. It abounds most and attains the largest size along the interior waters of Pennsylvania and Virginia, and especially along the banks of the Ohio. Here stocks are sometimes found from ten to fourteen feet in diameter, often beginning only to give out their vast branches at the height of sixty or seventy feet, and near the summits of the surrounding trees. At other times, this tree divides at the base into several huge trunks, equally surpassing its neighbors in bulk. It does not appear to exist north of latitude 45°, and is inferior in size for some distance south of this point; neither is it abundant in the lower parts of the Southern States. A moist and cool soil seems indispensable, for it is never found on dry grounds. In the Western States, this tree is usually known by the name of *sycamore*, and in some districts is called *cotton-tree*. The trunk and branches are covered with a smooth, pale-green bark, the epidermis of which detaches itself in portions; the roots, when first taken from the earth, are of a beautiful red color, which disappears on exposure to light in a dry place; the leaves are alternate, palmated, or lobed; and the flowers are united in little globular, pendent balls. The wood, in seasoning, takes a dull red color, is fine-grained, and susceptible of a good polish, but speedily decays on exposure to the weather. When thoroughly seasoned, it may be used in the interior of houses, but the defect of warping is attributed to it, and cabinet-makers rarely employ it except for bedsteads, which, when coated with varnish, retain their color.—The Oriental plane, so celebrated by the ancients for the majesty of its appearance, resembles the preceding in every respect, and bears the same relation to the forests of Western Asia. The wood, in those regions where it abounds, is frequently employed in the arts, and is said to acquire great hardness by being kept under water for some years,—an experiment which would be worth repeating on our own species.

Planets (from πλαναω, to wander); moving stars, which shine by reflecting the light of the sun, around which they revolve. Homer and Hesiod were already acquainted with Venus, but considered the morning and evening stars as two different bodies. Democritus supposed that there were several planets. Pythagoras discovered the identity of the morning and evening stars; and, in the fourth year before Christ, Eudoxus brought the knowledge of the motions of the five planets then known, from the Egyptians to the Greeks. In addition to these five planets, Mercury, Venus, Mars, Jupiter and Saturn, five others have been discovered in modern times: Herschel (Georgium Sidus, or Uranus), Ceres, Pallas, Juno, and Vesta; so that, including the earth and moon, there are now known eleven primary and eighteen secondary planets (satellites, or moons). Like the earth, many of them, if not all, have the motion of rotation on their axis, whence arise day and night, and a common motion around the sun, around which they revolve from west to east, through south, in elliptical orbits, generally making a small angle with the ecliptic, in different times, depending on their distances from the sun. The planet nearest the sun is Mercury, though thirty-seven millions of miles distant from it. It completes its revolution around the sun in eighty-eight days, moving with a velocity of 315 miles a second. It is the smallest of the six old planets, its bulk being only one eighteenth of that of the earth. Its time of rotation on its axis is twenty-four hours five and a half minutes, and its eccentricity is much greater than that of either of the other five old planets, or of Uranus. Next to Mercury is placed Venus, at a distance of sixty-eight millions of miles from the sun, around which it revolves in 225 days, having a mean velocity of 21 miles a second. It turns on its axis in twenty-three hours twenty-one minutes, as is known from observation of the spots on its surface. Mountains have also been observed in it, the height of some of which is computed to exceed eighteen miles. Seen from the earth, Venus and Mercury exhibit phases similar to those of the moon, sometimes appearing nearly full, sometimes half illuminated, or in the form of a crescent, and sometimes becoming invisible by turning to us the dark side. In size, Venus is nearly equal to the earth, and in her perigee approaches it within 27,600,000 miles, though in her apogee, she may recede 165,600,000 miles from it. We have no certain knowledge of a moon belonging to Venus; the supposed discovery of one seems to have been founded on a mistake. Mercury and Venus appear, at times, like black spots passing across the face of the sun, whenever, in their motion in their orbits, like the moon in solar eclipses, they enter the plane of the ecliptic within a few hours of their inferior conjunction. This phenomenon is called a *transit* of Mercury or Venus. A transit of the latter planet is of rare occurrence, two only taking place in about 120 years. Those of Mercury are much more frequent. The next transit of Venus will take place in 1874; the next of Mercury, May 5 of the present year, 1832, and May 7, 1835, both of which will be visible in the U. States. These two planets, which are nearer to the sun than the earth, are called the *inferior* planets, and those more distant are called the *superior*. Next in order to the earth (q. v.) and its moon (q. v.) is Mars, 143 million miles distant from the sun. In its orbit, which it accomplishes in one year and 322 days, it moves with a velocity of fifteen miles a second. It is flattened at the poles about one sixteenth of its diameter, and turns once in twenty-four hours thirty-nine minutes on its axis, which is inclined to the plane of its orbit at an angle of sixty-one degrees. The surface of Mars is about one fourth that of the earth, and, his density being less, the quantity of matter is only one seventh. Spots and belts are often observed on Mars; from which it is conjectured that it has a dense atmosphere. Between Mars and Jupiter there is a great distance, which led to the supposition that there was some body between them; and this conjecture was verified, in the beginning of this century, by the discovery of four new planets. January 1, 1801, Piazzi (q. v.), at Palermo, discovered Ceres, which, at a distance of 263 million miles from the sun, completes its revolution in four years seven months, moving with a mean velocity of 11¼ miles a second. On account of its small size, it is not visible to the naked eye, and, viewed through a telescope, has the appearance of a star of the seventh magnitude. This discovery was followed, March 28, 1802, by that of Pallas by Olbers, at Bremen. It is about the same distance from the sun, and accomplishes its revolution in about the same time as Ceres. It is supposed to be rather larger than either Vesta, Juno or Ceres. This planet is distinguished from every other by the great inclination of its orbit to the ecliptic. Juno, which revolves around the sun in four years and four months, commonly appears like a star of the eighth magnitude, and was discovered September 1, 1804, by Harding, at Lilienthal. Finally, March 29, 1807, Olbers discovered Vesta, which appears of the fifth to the seventh magnitude, is 225 million of miles from the sun, and completes its revolution around the sun in three years and eight months. Jupiter, the largest of the known planets, at a distance of 490 million miles from the sun, accomplishes its revolution, at the rate of seven miles a second, in eleven years and 314 days, and is attended by four moons, which were discovered by Galilei, at Florence, January 7, 1610, and the largest of which has a diameter nearly equal to the semi-diameter of the earth. The diameter of Jupiter itself is 11½ times greater than the diameter of the earth; its surface is 118 times, and its bulk 1281 times greater than that of the earth. In nine hours fifty-six minutes it revolves on its axis, which is inclined at an angle of eighty-seven degrees to its orbit, and at the poles it is flattened one fourteenth of its diameter. On the surface of this planet belts parallel to the equator are usually observed. At nearly twice the distance of Jupiter, or 900 million miles from the sun, Saturn passes through its orbit, 5760 million miles in length, in twenty-nine years and 169 days, accompanied by seven moons (of which five were discovered in the seventeenth century by Huygens and Cassini, two in 1789 by Herschel), and by a very remarkable double ring, which is 21,000 miles from the surface of the planet, and 27,000 miles in breadth; and the interval between them is about 3000 miles. According to Herschel, this ring completes its rotation in ten hours thirty minutes, while that of the planet itself is ten hours eighteen minutes. Finally, the knowledge of our solar system was enlarged, March 13, 1781, by Herschel's discovery of the Georgium Sidus (Herschel, Uranus), which is 1800 million miles distant from the sun, and, accompanied by six satellites, accomplishes its revolution in eighty-four years nine days, at the rate of about four miles a second. Its surface is nineteen times larger than the earth's, but so much less solid, that its quantity of matter is only 17½ times greater. To render the vast distances from the planets to the sun more comprehensible, an illustration, addressed to the senses, is often drawn from the velocity of a cannon ball, moving at the rate of eight miles a minute. With this velocity a cannon ball would go from the sun to Mercury in nine and a half years, to Venus in eighteen, to the earth in twenty-five, to Mars in thirty-eight, to Vesta in sixty, to Juno in sixty-six, to Ceres and

Pallas in sixty-nine, to Jupiter in 190, to Saturn in 238, and to Uranus or Herschel in 479, while it would go from the earth to the moon in twenty-three days.

Planimetry; that part of geometry which considers lines and plane figures, without any regard to heights or depths. Planimetry is particularly restricted to the mensuration of planes and other surfaces, as contradistinguished from *stereometry*, or the mensuration of solids, or capacities of length, breadth and depth.

Planisphere; a projection of the sphere, and its various circles on a plane, as upon paper, or the like. In this sense, maps of the heavens and the earth, exhibiting the meridians and other circles of the sphere, may be called *planispheres*.

Plant. Plants are generally defined as being organized bodies without voluntary motion. (See *Animal.*) In this case, however, as in numberless others, it is much easier to understand the word than to find a definition sufficiently comprehensive and sufficiently exclusive. Plants consist, like all organized bodies, of solid and fluid parts. To the former belong the cellular substance, the various vessels, the fibres and the pith (see *Medulla*); to the latter belong the sap and the various juices, as well as the air contained in plants. The air, the sap and the juices have appropriate vessels. The *entire* or *proper* vessels, so called, are intended to contain the proper juices of the plant, and are generally found filled with oils or resinous juices. They are generally in bundles in the cellular part of the bark, and are found in the young shoots of almost every plant. The *spiral* vessels, so called from their appearance, are the largest of the vegetable vessels, and in many plants their structure is visible to the naked eye. Their nature and their real economy are very obscure. They are situated round the medulla of the young shoots of trees and shrubs. The *perforated* vessels are cylindrical tubes, the sides of which are said to be pierced with minute perforations. They have, apparently, no office but that of air vessels. The fluid substances of plants move in the vessels just enumerated. The proper juices contain nourishment adapted for assimilation into the substance of the plant. They correspond in plants to what we call in animals *blood*, and may well be compared with it as to their functions. In a physiological respect, many points of correspondence between animals and plants are observable. Power of contraction, irritability, power of formation, power of reproduction, and other powers, are possessed by plants as well as by animals, though in a lower degree. The vital power preserves in plants, as it does in animal bodies, in all the changes to which they are subject, the peculiar character of the individual; and by it the chemical affinity of the primitive substances of which organic bodies consist is modified, so as to be different from what it is in inorganic bodies. If this vital power ceases, the organic body dies, and its component parts become subject immediately to the universal laws of affinity prevailing in inanimate nature. Whether sensation is to be ascribed to plants is doubtful, because, as yet, no nerves have been discovered in them; and the phenomena connected with certain plants, which seem to indicate the existence of sensation in them, may, perhaps, be reduced to simple irritability. Motion, as a consequence of vital power, is not to be denied to plants. Several of them, under certain circumstances, exhibit a motion in certain external parts, which is similar to that of animals. The motion of the juices in plants was known long before its cause was understood. Malpighi seems to have looked for the cause in a movement of the vessels; Hales in the warmth of the atmosphere; later naturalists have referred it to mechanical causes, considering the vessels of plants as capillary tubes. (q. v.) But the insufficiency of these explanations is easily seen, and it appears more correct to consider the irritability of the vessels as the cause of the rising of their juices. This view is confirmed by the fact that the juice ceases to rise if the irritability of the vessels is deadened by electric shocks. But in what this irritability consists, and how it operates, has not, as yet, been demonstrated. Only its existence is known; and experiments have proved that, by certain artificial means, it may be increased as well as diminished,—nay, entirely destroyed. Warmth, moreover, seems to influence the motion of the juice in plants; otherwise why should not the irritability produce motion in the juices in winter? A certain degree of heat is necessary before the juices begin to rise and the growth to proceed. Cold weather immediately produces a check or suspension. The heat of summer appears to weaken this irritability by degrees, till at length the juices move more and more slowly, and begin to stand still in autumn. With the irritability of plants, too, their sleep and their turning towards the light is closely connected. The former seems to ensue after they have been in continued and violent activity. It is particularly observable in the corolla, but also, in a lower degree, in the leaves. The disposition of plants to turn towards the light is easily seen in such as have light from one side only, as all the stalks, branches, leaves and blossoms turn in that direction.—Another important point in the physiology of plants is their *breathing*. This consists in an absorption and exhalation, especially observed in the case of the leaves. If a fresh leaf is put in a tumbler filled with spring-water, and exposed to the rays of the sun, it soon appears covered with small air-bubbles, which, by degrees, rise to the surface of the water, where they burst. If they are caught, it is found that they contain oxygen. The light of the sun is necessary to this phenomenon; mere heat is insufficient to produce it. Experiments respecting the breathing of plants have led to very different opinions. Ingenhouss thinks that plants exhale oxygen only in the light of the sun, but during the night azote and carbonic acid gas. According to Senebier, healthy plants and their leaves do not exhale any air whatever during the night; the same was maintained by Spallanzani. Ackermann, on the other hand, maintains that plants, like animals, must continually inhale the basis of vital air (oxygen), and exhale carbonic acid. But plants exhale not only gaseous matter; fluids are evaporated from them, the amount of which is considerable. It is asserted that a tree of middling size evaporates daily about thirty pounds of moisture.—As to the *odor* of plants, the recent progress of chemistry shows that the basis of it does not (as might have been supposed of so fleeting, diffusible, almost imponderable, entirely invisible a substance, affecting only the olfactory nerves) consist of a gaseous matter. Fourcroy showed that there does not exist a separate principle of scent. This property is as essential to bodies as gravity, but is proportionate to their volatility: the most volatile bodies have the strongest odor.—The *taste* of plants seems to depend on the proportions of their elementary ingredients, and on the degree of heat to which the plant is exposed. The rays of the sun, also, have a powerful influence on it. Of the *colors* of plants the same is true that has been said of their scent. Even Aristotle observed that plants are colored by the sun. Ray, Bonnet, Senebier, and others, made various experiments connected with this point. Senebier found that when plants were put in a dark place, their green leaves become first yellow on the surface and then white; whilst young plants which had grown up in the dark, when brought by him gradually to the light, exchanged their white color for yellow, which, after a while, became darker, and showed by degrees green spots, continually increasing in number and size, so that, after some time, the parts before white acquired a perfectly green color. With blossoms raised in the dark the change of color is but slight. Bonnet asserts the coöperation of heat in this process; but, according to the experiments of Van Mons and Vasalli, the light of lamps and of the moon operates in the same way. The cause of this remarkable phenomenon is at present known. Plants become lighter in consequence of combination with the oxygen which they inhale, darker if they lose it. The different proportion of oxygen to its other component parts gives the various gradations and shades. Saturation with oxygen gives the yellow and white color. But if a plant saturated with oxygen is exposed to the rays of the sun, the substance of the light unites with the oxygen, the latter escapes, and the plant reassumes its green color. For the rest, the color seems to have its seat in the cellular substance; the epidermis, however, is without color. The chemical analysis of plants shows that all vegetable matter consists chiefly of hydrogen, carbon and oxygen. Their different proportions produce the variety of vegetable substances. Of these substances chemistry has distinguished *gum*, *fecula or starch*, *sugar*, *gluten*, *albumen*, *gelatin*, *caoutchouc or Indian rubber*, *wax*, *fixed oil*, *volatile oil*, *camphor*, *resin*, *gum-resin*, *balsam*, *extract*, *tannin*, *acids*, *aroma*, *the bitter*, *the acrid and the narcotic principles*, *and ligneous fibre*. Several of these substances are capable of transformation into each other. Thus the tasteless mucilage passes into sugar or acid. These changes are produced by heat, moisture, air, alkalies, which change more or less the proportion of the original constituents. The formation, therefore, of the various substances in vegetables is the consequence of truly chemical operations, which may be traced from the germ to the ripe fruit. To determine how the original constituents are absorbed by light and heat, and united to each other by the vegetable organization in such a manner that they produce the various substances of which plants are composed, and which again, in their last analysis, are resolved into those original constituents—this is the problem of *vegetation*. The way in which plants grow, i. e. in which the nutritious parts pass into the plants, is thus stated:—Water and carbon resolve themselves into their constituent parts, enter into new unions, and thus form the solid portions of plants. Hydrogen separates from the oxygen in order to unite with carbon, and thus oils, resin and the like, are formed. At the same time, oxygen is formed from the water and carbonic acid, and passes off, in union with caloric, as oxygen gas. By means of these substances, the increase of the vegetable fibres, or the proper growth, is produced, though we are not able to see clearly the way in which it is effected. As to the fructification of plants, the same general theories exist as in regard to the fructification of animals; i. e. the theory of evolution, which considers the germ of all creatures as already existing, and only waiting for the process which is to call them into life, and the more philosophical theory of actual generation by a wonderful coöperation in the two sexes. This process in plants takes place in the following way, very similar to that in the case of animals:—Plants have male and female organs of generation, which may be observed by the naked eye; yet these parts are generally not permanent, as in the case of animals, but change after fructification has taken place. The pollen or farina is prepared and preserved in certain vessels destined for this purpose, called *anthers*. Its finest part penetrates through the stigma, an opening in the female part, through the pistil to the ovary, and fructifies the germs or ovules lying there. With most plants both sexes are united in one flower; with a few they are separated. The former are called *perfect* flowers, the latter *male* or *female*. The two latter either stand on one stem or belong to different plants. With the (so called) perfect flowers fructification is effected most easily; and also, where the same stem has male and female blossoms, no particular difficulty exists; but where the two sexes are entirely separated, fructification takes place only when the two plants of different sexes stand near enough for the pollen of the male plant to be carried to the female by the wind or by insects. If this or an artificial fructification does not take place, the germ either falls off, or it forms a fruit, which, however, is incapable of germinating. Wonderful, indeed, are the means by which nature effects the fructification of these plants! Within the flower of the plants are generally glands, which exude a honey, by which insects are attracted; but, in order to obtain this, they must powder themselves in the male flowers with the pollen. Visiting afterwards a female flower with the same view, they must deposit the pollen on the pistil. In some other plants, where the male and female parts in perfect flowers are placed so as not to be able to reach each other, little flies are attracted by the honey, but immediately upon their entrance the flower closes, and thus the insects, who crawl in all directions to find a way of escape, are forced to fructify it. Grasses are generally fructified by the wind. Linnæus founded his system (sexual system) on the generating organs of plants. (See the article *Botany*, for other systems.) He divided the whole vegetable world into twenty-four classes. The twenty-three first comprise the plants with visible blossoms, the *phanerogamous*. Of these, the thirteen first receive their names from the number of their stamens, or male organs of generation: their names are, 1. *monandria*, with one stamen; 2. *diandria*, with two; 3. *triandria*, with three; 4. *tetrandria*, with four; 5. *pentandria*, with five; 6. *hexandria*, with six; 7. *heptandria*, with seven; 8. *octandria*, with eight; 9. *enneandria*, with nine; 10. *decandria*, with ten; 11. *dodecandria*, with twelve to nineteen; 12. *icosandria*, with twenty; 13. *polyandria*, with more than twenty stamens. In all these classes, the orders, or first divisions of classes, are determined by the number of female parts of fructification; i. e. the pistils; for instance, *monogynia*, with one pistil; *digynia*, with two; *trigynia*, *tetragynia*, &c. The fourteenth and fifteenth classes are determined rather by the situation of the filaments. They are called, 14. *didynamia*, in whose blossoms are always four stamens, of which two are longer than the rest—hence the name; 15. *tetradynamia*, in whose blossoms are always six stamens, of which four have longer filaments than the others. Each of these classes contains but two orders. Those in the fourteenth are determined by the circumstance of the seed lying naked in the calyx (*gymnospermia*), or being covered (*angiospermia*). In the fifteenth class, the orders are determined by the comparative length of the pod or silique, the first being termed *siliculosa*, the second *siliquosa*. In the 16th, 17th and 18th classes, the number of bundles in which the filaments are united, determines the class; 16. *monadelphia* (one brotherhood), when the filaments are united in one bundle; 17. *diadelphia* (two brotherhoods), when they are united in two; 18. *polyadelphia* (many brotherhoods). The orders in these classes are determined by the number of the separate stamens, as *monandria*, *diandria*, *triandria*, &c. 19. *Syngenesia* (grown together), or compound flowers. Almost all the flowers belonging to this class consist of a number of small flowers united. This class has six orders:—(*a.*) *polygamia æqualis*, if the compound flower consists of perfect flowers only; (*b.*) *polygamia superflua*, when in one compound flower there are fertile female flowers, styliferous as well as perfect flowers; (*c.*) *polygamia frustranea*, when there are perfect flowers, and female flowers, but the former only fertile and yielding seed; (*d.*) *polygamia necessaria*, in which the reverse takes place, and the hermaphrodite flowers have no real stigmas; (*e.*) *polygamia segregata*, in which there are two sets of calyces, the outer, or common involucrum, and an inner or included calyx containing one or more florets, and thus producing as it were a doubly compound flower; (*f.*) *monogamia* (an order now abolished) was so named because it had no compound flowers. 20. *Gynandria*, of which the character is, that the stamens, one or more, are attached to the pistil or style. The orders are determined by the number of stamens, and are denominated *monandria*, *diandria*, &c. 21. *Monœcia* (one-housed plants), in which the sexes are separate, yet on one stem. The orders in this class are not only determined by the number of stamens, but there are also *monadelphia*, *syngenesia* and *gynandria*. In the last an imperfect pistil exists in the male flowers, on which stand the stamens. 22. *Diœcia* (two-housed plants), with entirely separate sexes, i. e. in which one plant produces only male, the other only female flowers. The orders are as in the 21st class. 23. *Polygamia* (a class now generally abolished and incorporated with *diœcia*); plants with complete and incomplete flowers distributed on two or three different individuals of the same species. The three orders of this class are called *monœcia*, *diœcia* and *triœcia*, according to the mixture on one, two or three stems. 24. *Cryptogamia*. To this class Linnæus refers all plants in which he found no sexual parts; but in many they have been since discovered, and even in those in which they are not yet known, they certainly are not wanting. It contains four orders:—1. ferns; 2. mosses; 3. sea-weeds, liverworts, lichens; and, 4. fungi. The palms, whose sexual parts Linnæus was unable to determine, and which he therefore described in an appendix, are at present distributed among the other classes. Later botanists have reduced the 24 classes to 20. This sexual system (so called) has been opposed by Schelver (*Kritik der Lehre von den Geschlechtern der Pflanzen* (Heidelb., 1812), and *Fortsetzung der Kritik* (Carlsruhe, 1814), and particularly Henschel, *Ueber die Sexualität der Pflanzen* (Bresl., 1820), whose views have attracted much attention. They start from the principle that the animal has the advantage of the plant in individuality, both in the general structure and in that of the various parts, and that the individuality which is the most prominent, is the animal generation; on the other hand, that with plants the similarity in the general structure, as well as in that of the single parts, is incompatible with diversity of sex, and that therefore all proofs alleged in support of the latter must undergo a reëxamination. Henschel undertook this; but Treviranus, in his *Die Lehre vom Geschlechte der Pflanzen* (Brem., 1822), has contradicted most of his statements. Yet the famous K. Sprengel adheres fully to Henschel's views. To this artificial system is opposed the natural, which is founded on the presence or absence of the chief organs, because plants differ from each other chiefly in this way. Oken followed this system in his Natural History for Schools (Leipsic, 1821). And such an one only can give an insight into the great and beautiful order of this vast kingdom of nature.—See Decandolle's *Organographie Végétale* (2 vols., 60 engrav.). As a convenient manual, we would refer the reader to Nuttall's Introduction to Systematic and Physiological Botany, 2d edit., Cambridge (Mass.), 1830. Respecting vegetable geography, see Schouw's *Diss. de Sedibus Plantarum originariis* (1816); his *Grundzüge einer Allg. Pflanzengeographie* (Copenhagen, 1822; translated from the Danish into German, Berlin, 1823); *Atlas of Veget. Geography* (Berlin, 1824); Alexander von Humboldt's works; particularly the introduction to Bonpland's (q. v.) work, *Nova Genera et Species Plantarum*, by Kunth.—*Anatomy of Plants*. A more accurate knowledge of the organization of plants has been obtained chiefly by the zealous and patient investigations of German and French naturalists, as Sprengel, Link, Treviranus, Mirbel, Richard, and many others. A short view of the organization of plants must suffice for our purpose. I. *General Structure of Plants*. The primitive form, which appears in the earliest stage even of the lowest plant, is the globule, which we may observe even in the nourishing juice, which exudes from the inner bark (*liber*) of trees. These globules, becoming connected, form a texture of cellules, which is universally diffused through the vegetable world. The sides of these cells are entire, without any apertures, so that one cell has no communication with the others; but the juices contained in them perspire organically in the same way as those in the animal body. In those cases in which the globules do not touch each other on all sides, they leave interstices, which serve as passages for the juices, particularly in trees with acicular leaves. Yet these passages are very often wanting in the cellular texture, because the little globules which form the latter are attracted so uniformly, that regular spaces are produced, the sides of which are perfect squares, pentagons or hexagons. The cellular texture serves for the preservation and preparation of the juices. Hence it is generally filled with mucilaginous, saccharine, oily or resinous substances. The cellular texture, in the more perfect plants, has a remarkable connexion with the air. From the ferns upward, it becomes more regular towards the surface of the plant, and full of spaces, which are filled with air, received through apertures of a peculiar organization. These apertures are found mostly where a green surface covers the plant, most frequently, however, on the lower surface of the leaves. They are more or less oval, generally surrounded by a glandulous ring, and have, sometimes, below them, small folds, which keep them open. They may be considered as destined to inhale and to exhale, but merely gases, not watery liquids. The second original formation is the rectilinear, fibrous, or, more properly, tubular structure. Powerful magnifiers show that the fibres are real tubes filled with juice, but not continuous, but here and there terminating in a point, e. g. in the liber of trees, also in the alburnum and in the (so called) nerves and ribs of leaves. Their first beginnings appear already in the mucilaginous nourishing juice, where they have the form of needles, and crystallize as it were in bundles. These tubes have the softest skin and the smallest diameter among all the original formations; yet they are extremely extensible and tough. They form what is spun as flax, and what is obtained for useful purposes from hemp, from the paper-mulberry, &c. Their chief purpose seems to be the conducting of the ascending juices. The third original formation is called the *spiral form*, because it consists primitively of fibres spirally wound, which form the sides of cylindrical canals. This formation appears, from the ferns upward, in the more perfect plants, surrounded by the vessels in bundles and single. In the trunk of common trees, it generally forms the alburnum and the wood. With the palms, the grasses, &c., the spiral bundles are distributed in the cellular texture. The spiral canals pass through all parts. Through the leaf-stalk they penetrate with the vessels that convey the juices into the nerves of the leaves, through the flower stalk into the corollæ, into the filaments, the ovaries, the pistils, even into the seeds. As long as they remain original, they have no wall, but that which is formed by those winding fibres. But they are not always found in this original form. They appear often as annular vessels, often as stair-shaped, or as perforated vessels, &c. At length there are transitions from them to the cellular form, particularly in the trees with acicular leaves. Here appear oblong cells perforated with regular holes provided with margins; nay, in the yew we even find cells with divisions winding spirally, which probably take the place of the spiral canals not existing here. The function of this third original formation seems to be the preparation and conducting of the gases, the moisture, &c., which proceed from the juices of the plants. II. *Particular Structure of the single Parts of Plants*. The root. The surface even of the firmest roots is surrounded with fine hairs, and the points are covered with a spongy cap, by which and the hairs the absorption of the moisture in the ground is carried on. A bundle of tubes passes through the centre of the root, in which there is no pith. The stem consists in woody dicotyledonous plants of three distinct parts—the bark, the wood and the pith. The bark is composed of four parts, 1. a dry, leathery, tough membrane, the cuticle; 2. a cellular layer adhering to the cuticle, and called the *cellular integument*; 3. a vascular layer; and, 4. a whitish layer, apparently of a fibrous texture, the inner bark, which is of a more complicated structure than the other layers. The wood is at first soft and vascular, and is then called *alburnum*; but it afterwards becomes hard, and in some trees is of a density almost approaching that of metal. It is composed of concentric and divergent layers, the former consisting of longitudinal fibres and of vessels of various kinds, the latter of flattened masses of cellular substance, which cross the concentric layers. The individual cells are narrow and horizontal in their length, and extend in series from the centre to the circumference of the wood, so as to form nearly right angles with the tubes of the concentric layers. Various opinions have been entertained respecting the origin of the wood or alburnum. Mr. Knight has proved that the alburnum is formed from the secretion deposited by the vessels of the liber. Wood, while in the state of alburnum, is endowed with nearly as much irritability as the liber, and performs functions of great importance in the vegetable system; but when it is hardened, these functions cease, and in time it loses its vitality, not unfrequently decaying in the centre of the trunks of trees, which often, however, put out new shoots, as if no such decay existed. To carry on, therefore, the functions of the wood, a new circle is annually formed over the old. The hardness of these zones increases with the age of the tree, those in the centre being most dense. In the centre of the wood is the pith, enclosed by the medullary sheath. The pith or medulla in the succulent state of a stem or twig, is turgid with aqueous fluid, but, before the wood is perfected, it becomes dry and spongy, except near the terminal bud, or where branches are given off, in which places it long retains its moisture. In the majority of woody dicotyledons it is longitudinally entire. The color of the pith in the succulent shoot, or the young plant, is green, which, as the cells empty, changes to white; but to this there are some exceptions. In the greater number of plants no vessels are perceptible in the pith. Little is known as yet with certainty concerning its functions. The majority of leaves are composed of three distinct parts, one firm, and apparently ligneous, constituting the framework or skeleton of the leaf; another, succulent and pulpy, fills up the intermediate spaces; and a third, thin and expanded, encloses the other two, and forms the covering for both surfaces of the leaf. The first of these parts is vascular, the second cellular, and the third a transparent cuticular pellicle. The cellular substance becomes more compact towards the upper surface, and is here generally covered by a sort of varnish. Towards the lower surface it becomes looser, and receives those apertures which permit the entrance of air. In flowers the calyx is generally of the same construction with the leaves; but the corolla consists of the most delicate cellular substance, whose inner surface rises in the most delicate prominences. The spiral canals of a very small diameter pass singly through the lower part of the leaves of the corollæ, and no trace of apertures is to be discovered. The filaments have a similar construction; but the anthers differ in construction from all the other parts. Entirely cellular, they contain, from the beginning, a number of bodies peculiarly formed, called *pollen*. The surface of the female stigma is covered with the finest hairs, which, without a visible aperture, receive the fructifying mass in the same organic way as the hairs of the root receive the moisture of the earth. The ovary contains, before the fructification, merely little bladders, filled with the nourishing juice. After the fructification, the future plant shows itself first in a little point which floats in that juice. Nourished by the latter, the little plant either swells and developes its parts, the cotyledones particularly becoming visible; or, if the juice is not entirely used up, it coagulates to a body like albumen, and the plant remains in the case of the (so called) *monocotyledones*, undeveloped.—(For the pressing of plants, see *Herbarium*.)

Plantagenet, Family of. (See *Great Britain, History of*.)

Plantain (*plantago major*); an insignificant and common weed, introduced here from the eastern continent, and which so closely accompanies the steps of civilized man as to have received from some of our Indian tribes the name of the *white man's foot*. The leaves are all radical, oval and petiolate, and from amongst them arise several long cylindrical spikes of greenish inconspicuous flowers.

Plantain Tree. By the English this name is frequently applied to a species of banana (*musa paradisiaca*) now cultivated in all tropical climates. The stem of this plant is soft, herbaceous, fifteen or twenty feet high, with leaves often more than six feet long, and nearly two broad. The spike of flowers is nearly four feet long, and nodding. The fruit, which succeeds the fertile flowers on the lower part of the spike, is eight or nine inches long, and above an inch in diameter, at first green, but when ripe, of a pale-yellow color, and has a luscious, sweet pulp. It is one of the most useful fruits in the vegetable creation, and, as some of the plants are in bearing most of the year, forms the entire sustenance of many of the inhabitants of tropical climates. When used as bread, it is roasted or boiled when just full grown; and when ripe, it is made into tarts, sliced, and fried with butter, or dried and preserved as a sweetmeat. Three dozen plantains are esteemed sufficient to serve one man for a week, instead of bread, and will support him much better.

Plaster of Paris. (See *Gypsum.*)

Plastic, in the English language used as an adjective only (from the Greek πλαστικος, from πλασσω, I form or shape); but in some other languages a word exists, to which, in English, *plastics* would correspond (Greek πλαστική). The term is of much importance in the theory of the arts and in criticism. With the Greeks, Germans, &c., it comprises the whole art of shaping figures from hard or soft masses. Three species are distinguished :—1. the art of shaping forms from soft masses, as clay, wax, gypsum, wheat-flour—the *ars plastica* proper, according to the original meaning of πλασσω: it precedes sculpture; 2. sculpture, or the art of making statues of harder masses (e. g. marble, alabaster, sandstone)—the *ars statuaria*; 3. the *sculptura* of the ancients, comprising works cut in wood and ivory. The materials which the ancient artists used chiefly were, 1. clay. Dibutades of Sicyon invented among the Greeks figures of clay. There are very ancient figures of this kind, of Greek and Egyptian origin. 2. Gypsum, used for stucco-work, and still found in antique buildings. The art of casting in gypsum was not known to the Greeks till late. Lysistratus, brother to Lysippus, who lived in the time of Alexander, invented it. Mengs, among the moderns, has devoted great attention to this art. In Dresden and Madrid are collections of his casts, taken from the finest works of the plastic art in Italy. (See *Mengs.*) 3. Wax. The same Lysistratus invented the art of casting figures of wax. The Roman images were formed of wax, and numberless figures, parts of bodies, &c., are made of it at present in Catholic countries, as offerings to be presented to saints. 4. Wood. The Greeks made many works of wood, from the earliest times to the most flourishing period of art. Wooden statues were erected to the victors in the Olympic games. 5. Ivory. The use of this material for plastic works is also very old, and the Greeks continued to use it much in the times of their highest perfection. The naked parts of the Olympian Jupiter and Minerva, in the Parthenon, were of ivory. 6. Stone. (*a*) Marble. Among the ancients, the Pentelican and Parian marbles were the most celebrated. Under Vespasian were discovered the Lunensian quarries, at present called *Carrara* quarries, the marble of which is whiter than the Greek. The Vatican Apollo is made of it. (*b*) Alabaster. The Etrurians worked much in it: the Indian was most esteemed. (*c*) Basalt. (*d*) Granite. Only the Egyptians worked in this; their statues and obelisks are generally of granite and sienite. There are two sorts of the granite, a red and a bluish sort. (*e*) Porphyry, of which there are also two sorts, one red, the other greenish, with golden spots. This, the hardest of all stones, was yet frequently wrought by the ancients into statues, as well as vases. (*f*) Egyptian lime-stone, soft and white, or dark green. 7. Glass, the invention of which is very old. The ancients made of glass not only many utensils for domestic purposes, but also urns of the dead, and great drinking vessels, ornamented with raised work, or cut. Obsidian must be mentioned here, a kind of mountain-crystal, discovered by a certain Obsidius. (See *Pitchstone.*) 8. Murrhinum. (See *Murrhine Vases.*) It is probable that it was a kind of Chinese steatite. 9. Metal. (*a*) Gold, partly employed for entire statues, partly for the covering of ivory statues. (*b*) Silver. (*c*) Bronze. This metal was very much used; the best ore for preparing it was obtained by the Greeks from the islands of Delos and Ægina; at a later period, the Corinthian became the most popular. The most common mixture was 12½ parts tin to 100 copper. Metals were at first wrought with the hammer; at a later period they were cast. At first, figures were cast in several pieces, which were united by *swallow-tails*, so called, shaped thus, ≍; at length, the art of casting whole figures was invented, but it afterwards went out of use; and it was not till the sixteenth century that the Italians began again to cast large bronze figures. The first large statue cast in Italy was that of pope Paul III by Guglielmo della Porta. In 1699, the first great work in bronze was cast in Paris. The first of all the figures cast in bronze is ascribed by the Greeks to Rhœcus and Theodoros of Samos. (*d*) Iron, which was the last used for plastic purposes. Glaucus discovered the art of casting iron; at Delphi were consecrated offerings made by him. Never was the art of casting in iron carried to greater perfection than in our times, particularly at Berlin. (See *Sculpture.*)—*Plastic*, in its narrowest sense, signifying that which is fit to be represented in forms, or is well represented in forms, is opposed to *picturesque* in its widest sense, signifying that which is fit to be represented, or is well represented in painting. Intimately connected with the general difference between the spirit of ancient and that of modern art, to which we have already often alluded, is the circumstance that the Greeks had a much greater disposition to express their ideas in forms than in pictures, so far as the fine arts are made use of for the expression of ideas. They accordingly carried the arts which speak through the form to the highest perfection; i. e. the plastic arts. The religion and prevailing sentiments of the Greek led him to view this life as the most important part of his existence, and the perfection of this life as the chief perfection to which he could aspire; whilst the modern, or Christian, considers every thing with reference to a future life, to which he aspires. The chief aim of the latter, in the fine arts, therefore, is the expression of glowing feeling. He makes the forms and beings which he finds on the earth express his views of a more perfect and purer world for which he longs (and colors and tones are the most ready means of so doing), whilst the Greek embodies all his ideas in forms to which he does not attempt to give an expression superior in kind to the terrestrial, like the Christian, but merely idealizes them, i. e. developes their excellences so as to give them what would be terrestrial perfection. On the whole, we may say the ancients strove much more to represent the beautiful for its own sake, whilst with the moderns it is made subsidiary to the expression of feeling. Hence the necessary consequence that, wherever it was admissible, the Greeks represented naked human beauty, the most perfect in creation; and to such a degree did that gifted and finely organized people develope their sense of beauty and the power of embodying it in forms, that they have ever since remained the models of successive ages. So great and general, indeed, was the sense for plastic beauty with the Greeks, that it influenced most of the other branches of art, as painting, which has with the Greeks a decidedly plastic character; and Schlegel is quite correct when he says that, in order to understand perfectly well the tragedy of the Greeks, it is necessary to be thoroughly acquainted with their plastic art, because the mind of the Greek has, in every thing connected with the beautiful, an eminently plastic turn; and the poet does not develope before our eyes great and peculiar characters by a series of events and actions, nor does he present views which are the consequence of connecting all our present existence with another world; but he conceives the existing world idealized, perfected by its own laws, and, if he composes for representation, this view closely allies itself to the spirit which pervades the sculpture of his country.—*Plastic* is also used in praise of modern poems or historical writing, if they are so well executed that they represent characters or actions as expressively as a sculptor would do by a fine statue.

Plata, Rio de la (that is, *river of silver*); a large river of South America, which flows into the Atlantic ocean between latitude 34° 55′ and 36° 21′ S. It is formed by the union of the Parana and Uruguay. The former rises in Brazil, and receives the Paraguay coming from the same country, after which it unites with the Uruguay, also coming from Brazil, at about 175 miles from the ocean. At this point, the Plata is thirty miles wide; at its mouth, about 100 miles. The Paraguay rises in latitude 13° 30′ S., and receives the large rivers Pilcomayo and Vermejo from the west. The whole length of the Plata, from the head waters of the Paraguay to the ocean, is about 2300 miles. The basin which it drains extends from lat. 13° to 38° S., and from lon. 51° to 74° W., and is therefore about 1800 miles from north to south, by 1500 from east to west. Excepting the Amazon, it has the largest volume of water of any river in the world. The navigation of the Paraguay is difficult on account of the shoals and falls. The Parana is deeper than the Plata, and is rendered dangerous by its numerous sandbanks. The ports on the Plata are Montevideo and Buenos Ayres. It was first discovered by Solis, who gave it the name of *La Plata*, but from whom it was often also called the *river of Solis*. Sebastian Cabot, then in the service of Spain, visited the river a few years afterwards (1526), and penetrated to the Paraguay.

Plata, United Provinces of the (*Provincias Unidas del Rio de la Plata*, or *Republica Argentina*); a republic of South America, consisting of a part of the former Spanish viceroyalty of the Rio de la Plata, or Buenos Ayres. The republic of Bolivia, the state of Paraguay, and the republic of the Banda Oriental, which were comprised within the limits of the viceroyalty, now form independent states. The United Provinces are bounded on the north by Bolivia; on the east by Paraguay, from which they are separated by the river Paraguay, the Banda Oriental (which the Uruguay separates from them), and the Atlantic ocean; south by Patagonia; and west by Chile and the Pacific ocean. The extreme length, from lat. 20° to 40° 10′ S., is about 1400 miles; the breadth varies from 500 to 800 miles.

The viceroyalty extended over an area of about 1,500,000 miles; the Argentine republic comprises about two thirds of this surface, with a population estimated at 2,000,000, of which 600,000 are Spanish creoles, 600,000 mestizoes, 800,000 Indians, and 25,000 negroes. This part of the country was first discovered by Juan Diaz de Solis, in 1517, and was further explored by Sebastian Cabot, then in the service of Spain, in 1526. In 1553, the first Spanish colony was founded here by don Pedro de Mendoza, who built Buenos Ayres. The government was at first dependent upon that of Peru, and, in consequence of the restrictions imposed on its commerce, had no other communication with other parts of the world than by the annual fleet from Spain. But as the population multiplied, and the agricultural produce increased, some relaxations in the monopoly system took place, and finally, to put a stop to the smuggling, which had been carried on to a great extent, register ships were allowed to sail, under a license from the council of the Indies, at any time. The annual flotilla sailed for the last time in 1748; in 1774, a free trade was allowed between several of the American ports, and, in 1778, several Spanish ports were allowed an open trade to Buenos Ayres. In the same year, the viceroyalty of Buenos Ayres was constituted, and, as it included the rich provinces of Upper Peru, became not only important as an agricultural colony, but for its valuable mines. The commerce continued to increase in value until the war between England and Spain (1797), after which it never revived, and has been entirely annihilated by the recent events. In 1806 and 1807, the inhabitants, having victoriously repelled the attacks of the English, under generals Beresford and Whitelocke, learned to know their own strength, and, in 1810, the first insurrection against the mother country broke out at Buenos Ayres. In none of the Spanish colonies were there so few blacks; none had been so much neglected by the mother country; hence in none were shown a greater unanimity of purpose, and firmness in resistance. The inhabitants of this colony were, also, superior to most of the colonists in cultivation and character. Liniers, a French officer who had conducted the successful resistance to the British, was declared viceroy, in the place of the Spanish governor. But as he favored the cause of Joseph Napoleon, he was soon after deposed, and the junta of the province of Buenos Ayres managed the government under Cisneros, the new Spanish viceroy; the latter, however, was deposed by the junta, on account of his attempts to revive the old Spanish policy, and sent home. The junta took upon itself the administration, in the name of Ferdinand VII. Chile followed this example, and sent troops to the assistance of Buenos Ayres. The insurgents likewise took possession of Upper Peru, where an insurrection had already broken out at La Paz, Aug. 16, 1809. Liniers, who was supported by some of the internal provinces, made an unsuccessful attempt against Buenos Ayres; he was deserted by his troops, and, having been made prisoner with some of his adherents, was shot. The other provinces joined Buenos Ayres, and the creoles were every where victorious. In 1811, the junta was dissolved, in consequence of the intrigues of its president; and a congress, assembled at Buenos Ayres, vested the executive power in the hands of a triumvirate; but the progress of the Spanish arms in Peru led the congress, in 1814, to name Pozadas supreme director of the republic, with a council of seven; and the government thus acquired more unity and vigor. Monte Video was yet occupied by a Spanish garrison, but was soon after taken by the Buenos Ayrean forces; Artigas, the commander in the Banda Oriental, then declared himself independent, defeated the troops of Buenos Ayres, and took possession of Monte Video, which, in 1817, fell into the hands of a Brazilian force. (See *Artigas*, and *Banda Oriental.*) At the same time, Paraguay, under doctor Francia, declared itself independent. (See *Francia*, and *Paraguay.*) In 1816, a new congress met at Tucuman, which named Pueyrredon director of the republic, on July 19, declared the countries on the Plata independent, and, having transferred its sessions to Buenos Ayres, issued a declaration (*Manifestacion historica y politica de la Revolucion de la America, Oct.* 25), containing a list of twenty-eight grievances. The republic now assumed the title of United Provinces of South America, and, Dec. 3, 1817, proclaimed a *reglamento provisorio* as preliminary to a constitution. The congress, chosen in compliance with the *reglamento*, was opened in February, 1819, and, on the 25th of May, the new constitution was published. It was on the model of that of the U. States, and secured personal freedom and equality, liberty of conscience and of the press, and the right of suffrage. Pueyrredon, who declined reelection to the place of supreme director, was succeeded in that post by general Rondeau. The country still continued in a disturbed state, and, in 1820, colonel Rodriguez was placed at the head of affairs by the federalists. The nomination of Rivadavia, who had previously been plenipotentiary to Paris and London, to the place of secretary of state in 1821, contributed to restore order; the province of Buenos Ayres yielded its claims to superiority over the other provinces, which established separate provincial governments, and sent deputies to a general congress at Buenos Ayres, May 1, 1822. The treaties of peace and amity, concluded with Santa Fé, Entre Rios and Corrientes, restored peace, and general amnesty established domestic tranquillity. The confederacy now consisted of the nine provinces of Buenos Ayres, Tucuman, Cordova, Salta, Cujo, Potosi, Cochabamba, La Paz and Puno. The vigilant and prudent policy of Rivadavia, who was also at the head of the department of foreign affairs, changed the condition of the country. The revenue of 1823 exceeded the expenditures; the customs, in particular, were much increased by the commercial prosperity. In 1822, the congress of the U. States, considering that the provinces of Buenos Ayres, after having, from the year 1810, proceeded in their revolutionary movements without any obstacle from the government of Spain, had formally declared their independence in 1816; and that, after various intestine commotions and external collisions, those provinces had attained domestic tranquillity, and a good understanding with all their neighbors, and actually exercised, without opposition from within or the fear of annoyance from without, all the attributes of sovereignty,—resolved that they ought to be recognised as an independent nation; and a minister plenipotentiary was, therefore, appointed to Buenos Ayres (1824). In 1825, a treaty of peace, commerce and navigation was concluded with Great Britain. At this time the republic assumed the title of United Provinces of La Plata. The principal functions of government were discharged for several years by a constituent congress, the executive power being intrusted to the provincial government of Buenos Ayres. In February, 1826, Rivadavia was chosen president of the United Provinces. In December preceding, the emperor of Brazil had declared war against the Argentine republic, in consequence of its having taken possession of the Banda Oriental. Garcia, who was sent by Rivadavia to negotiate a peace, having ceded the Banda Oriental to the emperor, the president was induced, by the general dissatisfaction with this step, to resign. The successes of the Argentine arms led to articles of agreement with Brazil (August, 1828), by which it was stipulated that the Brazilians should evacuate the disputed province, which was declared an independent state. (See *Monte Video*.) On the resignation of Rivadavia, congress dissolved, each of the provinces again became independent, and colonel Dorrego was chosen governor of the province of Buenos Ayres. The new governor was expelled from the city in December of the same year, by general Lavalle, the head of the Unitarios, who caused himself to be proclaimed governor, and, having made Dorrego prisoner, caused him to be shot on the spot. A civil war of the most bloody description ensued, and, in August, 1829, general Lavalle found himself compelled to resign. He was succeeded by general Viamont, who was at the head of the federal party, who, in turn, gave way to general Rosas in December of the same year.—See Funes, *Historia civil del Paraguay, Buenos Ayres y Tucuman* (Buenos Ayres, 1825); Nuñes, *Historical, political and statistical Account of the United Provinces of La Plata* (translated from the Spanish, London, 1825); Head's *Journey across the Pampas;* Miers, *Travels in Chile and La Plata* (2 vols., London, 1826); Haighs, *Sketches in Peru, Chile and Buenos Ayres* (London, 1831); Miller's *Memoirs* (2 vols., London, 1828); the *American Annual Register* (I, II, III, IV).

Platææ; a town in Bœotia, celebrated for the battle in which the Persians, under Mardonius, were defeated by the Greeks, B. C. 479. After Xerxes had been defeated at Salamis (q. v.), he returned with the greatest part of his forces, but left 300,000 men, under Mardonius, in Thessaly, to influence the negotiations of that commander with the Greeks. On the failure of his attempts to negotiate, Mardonius advanced towards Attica, and laid waste every thing with fire and sword. One hundred thousand Greeks, under Pausanias and Aristides, having solemnly sworn to prefer death to subjugation, advanced against the Persians, and the two armies met near the small town of Platææ, September 25. The loss of the Greeks was inconsiderable. Mardonius fell, and hardly one tenth part of his army escaped by flight; but few ever returned to their country. On the same day, the remnant of the Persian fleet, which had escaped from Salamis, was destroyed off Mycale by the Greeks, under the Athenian Xanthippus and the Spartan Leotychides. From that time, Greece was freed from invasions from Persia. The Platæans distinguished themselves both at Marathon and Platææ.

Plate Glass. (See *Glass.*)

Platina is a metal of modern discovery, and owes its name to the idea at first entertained of its being related to silver, it being a diminutive of the Spanish word *plata*. We shall first describe its ore, denominated in mineralogy *native platina*. It occurs in very small, irregularly formed grains, of uneven surface, usually flattened, and having the appearance of being worn by attrition. They are destitute of cleavage, and possessed of a hackly fracture; lustre metallic; color perfect steel-gray; streak unchanged and shining; ductile; hardness a little above that of fluor; specific gravity 17.3. It generally contains a little iron, and is accompanied, besides, by iridium, osmium, rhodium, palladium, and also by copper, chrome and titanium. It is very refractory, and soluble only in nitro-muriatic acid. The pieces in which it occurs rarely exceed a few grains in weight. It has been found principally in secondary deposits, and was first brought from Peru, and from Choco, in New Grenada. It also occurs in Brazil and St. Domingo; but of late comes, in the largest quantity, from Siberia, where it is found in the auriferous sands of Kuschwa, in the Uralian mountains. The richest beds of these sands are from two and a half to five feet in thickness, and yield from one to three pounds of metal for about 3700 pounds of sand. Native platina is also abundant on the western slope of the Uralian mountains. More recently, it has been found in a sienitic rock, along with oxide of iron and gold. The grains in which it occurred, possessed the same shape as those found in the sands. This locality is near Santa Rosa, in the province of Antioquia. To procure the pure metal from its ore has been one of the most difficult problems in metallurgy; and all the processes formerly employed have given way to the ingenious one invented and practised, for a long time privately, by doctor Wollaston, and which he made public, through the Philosophical Transactions, in 1829. The crude platina is dissolved in nitro-muriatic acid (formed in the proportion of three pounds of muriatic acid to two of the simple aqua fortis). The acid should be allowed to digest three or four days, with a heat which ought gradually to be raised. The solution, being then poured off, should be suffered to stand until a quantity of fine pulverulent ore of iridium, suspended in the liquid, has completely subsided, and should then be mixed with a solution of muriate of ammonia (the salt being dissolved in five times its weight of water). A yellow precipitate of platina will immediately fall, which must be well washed in order to free it from the various impurities known to exist in native platina, and must ultimately be well pressed in order to remove the last remnant of the washings. It is next to be heated, with the utmost caution, in a black lead pot, with so low a heat as just to expel the whole of the muriate of ammonia, and to occasion the particles of platina to cohere as little as possible; for on this depends the ultimate ductility of the product. When turned out of the crucible, it will be found of a gray color, and, if prepared with due precaution, lightly coherent. It now requires to be rubbed between the hands, in order to procure, by the gentlest means, as much as can possibly be so obtained of metallic powder, so fine as to pass through a fine lawn sieve. The coarser parts are then to be ground in a wooden bowl, with a wooden pestle, but on no account with any harder material, capable of burnishing the particles of platina (because burnished particles of platina will not weld); and indeed every degree of burnishing would prevent the particles from cohering in the further stages of the process. And since platina cannot be fused by the utmost heat of our furnaces, and consequently cannot be freed, like other metals, from its impurities during igneous fusion by fluxes, nor be rendered homogeneous by liquefaction, the mechanical diffusion through water should here be made to answer, as far as may be, the purposes of melting, in allowing earthy matters to come to the surface by their lightness, and in making the solvent powers of water effect, as far as possible, the purifying powers of borax and other fluxes, in removing soluble oxides. By repeated washing, shaking and decanting, the finer parts of the gray powder of platina may be obtained as pure as other metals are rendered by the various processes of metallurgy; and if now poured over, and allowed to subside in a clean basin, a uniform mud, or pulp, will be obtained, ready for the further process of casting. The mould to be used for casting the metallic powder, is a brass barrel, 6¾ inches long, turned rather taper within, with a view to facilitate the extraction of the ingot to be formed, being 1.12 inches in diameter at top, and 1.23 inches at a quarter of an inch from the bottom, and plugged at its larger extremity with a stopper of steel, that enters the barrel to the depth of a quarter of an inch. The inside of the mould being now well greased with a little lard, and the stopper being fitted tight into the barrel by surrounding it with blotting paper (for the paper facilitates the extraction of the stopper, and allows the escape of water during compression), the barrel is to be set upright in a jug of water, and is itself to be filled with that fluid. It is next to be filled quite full with the mud of platina, which, subsiding to the bottom of the water, is sure to fill the barrel without cavities, and with uniformity—a uniformity to be rendered perfect by subsequent pressure. In order, however, to guard effectually against cavities, the barrel may be weighed after filling it; and the actual weight of its contents, being thus ascertained, may be compared with that weight of platina and water which it is known, by estimate, that the barrel ought to contain. A circular piece of soft paper first, and then of woollen cloth, being laid upon the surface of the barrel, allow the water to pass during partial compression by the force of the hand with a wooden plug. A circular plate of copper is then placed upon the top, and thus sufficient consistency is given to the contents to allow of the barrel being laid horizontally in a forcing-press. After compression, which is to be carried to the utmost limits, the stopper at the extremity being taken out, the cake of platina will easily be removed, owing to the conical form of the barrel; and, being now so hard and firm that it may be handled without danger of breaking, it is to be placed upon a charcoal fire, and there heated to redness, in order to drive off moisture, burn off grease, and give to it a firmer degree of cohesion. The cake is next to be heated in a wind-furnace; and, for this purpose, it is to be raised upon an earthen stand, about two and a half inches above the grate of the furnace, the stand being strewn over with a layer of clean quartzose sand, on which the cake is to be placed, standing upright on one of its ends. It is then to be covered with an inverted cylindrical pot of the most refractory crucible ware, resting at its open end on the layer of sand; and care is to be taken that the sides of the pot do not touch the cake. To prevent the blistering of the platina by heat, which is the usual defect of this metal in its unmanufactured state, it is essential to expose the cake to the most intense heat that a wind-furnace can be made to receive, more intense than the platina can well be required to bear under any subsequent treatment, so that all impurities may be totally driven off. The furnace is fed with coke, and the action of the fire maintained for about twenty minutes from the time of lighting it. The cake is now to be removed from the furnace, and, being placed upright upon an anvil, is to be struck, while hot, upon the top, with a heavy hammer, so as at one beating effectually to close the metal. If in this process the cylinder should become bent, it must on no account be hammered on the side, by which treatment it would be cracked immediately, but must be straightened by blows given upon the extremities, dexterously directed, so as to reduce to a straight line the parts that project. The ingot of platina, when cold, may be reduced by the processes of heating and forging, like any other metal, to any form that may be required. After forging, the ingot is to be cleaned from the ferruginous scales which its surface is apt to contract in the fire, by smearing over its surface with a moistened mixture of equal parts, by measure, of crystallized borax and common salt of tartar, which, when in fusion, is a ready solvent of such impurities, while it does not act, like caustic alkali, upon the platina itself. It is then to be exposed upon a platina tray, under an inverted pot, to the heat of a wind-furnace. The ingot may then be flattened into leaf, drawn into wire, or submitted to any of the processes of which the most ductile metals are capable. The mean specific gravity of the metallic cake of platina powder, when taken from the press, is 10; that of the cake fully contracted by heat, before forging, is from 17 to 17.7; that after forging is about 21.25, and that of wire, 21.5, being the maximum density of this metal. Pure platina has a white color, very much like that of silver, but is inferior in lustre to that metal. Its malleability is far less than that of gold or silver, but superior to that of tin. It may be drawn into wires that do not exceed the 2000th part of an inch. It is a soft metal, and, like iron, admits of being welded at a high temperature. A wire one tenth of an inch supports 590 pounds without breaking. As a conductor of heat, it ranks between gold and silver. It undergoes no change from the combined agency of air and moisture, and it may be exposed to the strongest heat of a smith's forge without suffering either oxidation or fusion. On heating a small wire of it, by means of galvanism, or the compound blow-pipe, it is fused, and afterwards burns with the emission of sparks. Platina is not attacked by any of the pure acids. Its only solvents are chlorine and nitro-muriatic acid, which act upon it with greater difficulty than on gold. The resulting orange-red colored liquid, from which the excess of acid should be expelled by cautious evaporation, may be regarded as containing either chloride of platinum, or the muriate of its oxide. According to Berzelius, there are two *oxides* of this metal, the oxygen of which is in the ratio of 1 to 2. The *protoxide* prepared by the action of potash on protochloride of platina is of a black color, and is reduced by a red heat. The *peroxide* is obtained with difficulty; for, on attempting to precipitate it from the muriate, by means of an alkali, it either falls as a sub-salt, or is held altogether in solution. It is of a yellowish-brown color, resembling rust of iron when dry, and is nearly black when anhydrous. Like peroxide of gold, it is a very feeble base, and is much disposed to unite with alkalies.—*Chlorides of platina.* The *perchloride* is procured by evaporating muriate of platina to dryness, by means of a gentle heat. It is deliquescent, and is soluble in water, alcohol and ether. The muriate of platina is the *protochloride*, and is resolved, on heating, into platina and chlorine. According to Mr. E. Davy, there are two *phosphurets* and three *sulphurets* of platina. The salts of platina have the following general characters: their solution in water is yellowish-brown; sulphureted hydrogen throws down the metal in a black powder; hydriodic acid produces a thin film of platina upon the surface of the solution, after a few hours standing. The *sulphate* of platina is formed by the action of nitric acid upon the sulphuret, or hydrosulphuret. It is soluble in water, alcohol and ether. When a strong aqueous solution of it is mingled with alcohol, in equal volumes, and heated, it will deposit a black powder, which, on being washed and dried, and heated to the temperature of 400°, explodes with violence. This detonating compound is analogous to those which ammonia forms with the oxides of gold and silver. The useful *alloys* of platina are not numerous. With silver it forms a tolerably fusible white alloy, malleable and brilliant when polished; but it scales and blackens by working. Gold, by a forge heat, combines with platina, and the alloys, in all proportions, are more fusible than platina. In the proportion of 38 grs. to 1 oz., it forms a yellowish-white, ductile, hard alloy; it is so elastic after hammering, that it has been proposed to use it for watch-springs. Mercury, by trituration with spongy platina, forms an amalgam at first soft, but which soon becomes considerably firm, and has been much used in obtaining malleable platina. A coating of platina can be given to copper and other metals, by applying to them an amalgam of spongy platina, and five parts of mercury; the latter metal is then volatilized by heat. Lead combines with platina readily; and iron and copper in like manner: the last mentioned, when added in the proportion of 7 to 16 of platina and 1 of zinc, and fused in a crucible, under charcoal powder, forms the alloy called *artificial gold.* Steel unites with platina in all proportions, and, especially in the proportion of from 1 to 3 per cent. of platina, forms a tough and tenacious alloy, well adapted for cutting instruments. Arsenic unites easily with platina, and was once employed for rendering the latter metal fusible. Platina is a metal of great utility. It is used for the construction of large boilers for the concentration of sulphuric acid, the larger ones of which cost upwards of 300 guineas. Its uses in chemistry are numerous, and very important. It is also employed for staining pottery; and has lately been coined in Russia, and forms a part of the circulating medium of that country.

Plato (from πλατυς, broad). The celebrated Greek philosopher of this name was so called on account of the breadth of his chest and forehead. His original name was *Aristocles.* He was the son of Ariston and Perictione, and was born about 429 B. C. Among his ancestors were king Codrus and the lawgiver Solon. Circumstances were favorable to his early education: his body and mind were equally developed. In gymnastics, he was instructed by Ariston, in the rudiments of letters by the grammarian Dionysius, in painting and music by Draco and Metellus, in philosophy at first by Cratylus. Until his twentieth year, the gifted youth tried his creative power in epic, lyric and dramatic poetry with much ardor. Nothing satisfied him. We now see him introduced by his father to the wise Socrates, who, the story says, was just relating to his pupils a dream, in which he had seen a young swan fly from the altar of Cupid into the academy, and alight in his lap, whence he soared, with an enchanting song, into the air:—"See, here, the academic swan!" he exclaims, perceiving Plato. He cultivated the mind of his new pupil for eight years, and the acute and profound views of the scholar tasked his faculties, and awakened in him admiration and love. After the sage—accused of deriding the gods of his country—had drank the hemlock, Plato, thirsting for the highest knowledge which his times could afford, left Athens. He first visited Megara, where he staid for some time with Euclid (the head of the Megarean school, and formerly also the disciple of Socrates), exchanging opinions, and calling to mind the lessons of their teacher. He then visited Magna Græcia, where he held intercourse with the Pythagoreans; Cyrene, a Greek colony in Africa, where he became acquainted with Theodorus; also Egypt, the land of ancient wisdom, and was prevented only by the breaking out of a war from visiting Syria and Persia. At the age of about forty years, he returned, and arrived at Syracuse, then ruled by the tyrant Dionysius. He formed a friendship with Dion, a relative, indeed, of Dionsyius, but hostile to the effeminate luxury of his countrymen, and inspired with a noble zeal for the improvement of his country. Dion introduced him to the tyrant, to try whether intercourse with his friend might not dispose the ruler more favorably towards liberty. But Plato's philosophic and independent spirit offended the tyrant, who became suspicious of him, and, when Plato embarked, in consequence of the representations of Dion and Aristomenes, he bribed the latter to kill or sell him. Aristomenes did the latter, but Anniceris ransomed him; and Plato at last returned to Athens, where, about the 99th Olympiad, he taught philosophy in the academy—a gymnasium situated in the suburbs. In the second year of the 103d Olympiad (368 B. C.), Dionysius I died, and Dionysius II succeeded him. Dion now entertained new hopes, and Dionysius, who was desirous of having learned men at his court, joined him in an invitation to Plato to visit Syracuse again. The philosopher was fully conscious of the danger and probable failure of his visit; but the hope of being useful made him once more resolve to leave the shores of Attica. Speusippus accompanied him. The beginning promised well: his entrance into Syracuse was solemnly celebrated. He instructed the prince in mathemathics: but he soon became again the object of jealousy and intrigue. Philistius, the historian, who had been banished under the late reign, was recalled, in order, as was pretended, to support the tottering throne. He fanned the suspicions of the tyrant against Dion, and hardly had three months elapsed from the time of Plato's arrival in Sicily, when his friend was carried to the coast of Italy. Plato was obliged, by repeated and urgent invitations, to take up his residence in the royal palace, where he was closely observed; and if it had not been for the breaking out of a war, his request for dismission would probably not have been complied with. It was granted at length, but on condition that he should return after the conclusion of peace. He now went back to Athens, where he tried to console Dion. Peace was concluded, and Plato was reminded of his promise. He, however, resisted all the flattering assurances which were made him for some time. At last Dionysius sent a vessel bearing letters and personal friends of Plato to prevail on him to repair to Syracuse. He yielded at last with the hope of doing something for his friend Dion. But his situation became worse than it had been on his previous visit. Dion's income was kept back, and Plato's life was even endangered. Archytas, however, persuaded the tyrant that a political measure required the return of Plato: he was allowed to depart, and even his travelling expenses were paid. He landed in Elis, where he found Dion, who formed a plan for punishing the tyrant; but Plato was unwilling to accede to it. It cannot surprise us that a man of so elevated a character was calumniated, and accused of avarice, intemperance, vanity, and even flagitious crimes. These charges are refuted by the high esteem in which Plato was held, by his life and actions. He died in the first year of the 108th Olympiad (348 B. C.), on his eighty-second birth-day, a hale old man, breathing out his life in soft slumber among friends, at a wedding banquet. An inscription in the Ceramicus, where he was buried, proclaimed his merit, and the love of his contemporaries.—In order to understand the whole of Plato's philosophy, and seize its true spirit, it is necessary to acquaint one's self with the gradual unfolding of the Greek philosophy, and the different modes in which it was cultivated in the various schools, and, at the same time, to be acquainted with the spirit of Oriental metaphysics. The conceptions of a mind like

Plato's, inspired with the most lofty and glowing desire to show the connexion of the human soul with the original fountain of light and perfection, and its aspirations for a reunion with it (which can be expressed only in feeble comparisons and imperfect images); of a mind to which the greatest earthly good appeared to be the union of kindred souls in the love and zealous search for truth (the Platonic love); of a mind which conceived the human soul to contain, in its present state of lost perfection, all the germs of regeneration and restoration to the kingdom of truth—the works of such a lofty, pure and gifted spirit require to be studied with peculiar attention, and with a spirit superior to the temptation to ridicule images and comparisons that attempt to convey thoughts for which language is insufficient, and which remind us of St. Augustine's expression, that we are placed too high for our own understanding. We must expect, indeed, to meet some strange mistakes, when a spirit like Plato's enters into the details of particular subjects, as, for instance, in his Republic; but this very treatise affords most insight into the mind of the philosopher, although it discloses but a part of his whole system or doctrine. Of such a system of philosophy, however, it would be impossible, within our limits, to give a view that would convey any satisfactory idea. No scholar of late has done so much for the just appreciation of this great mind as professor Schleiermacher, by his arrangement of the various writings of Plato, accompanied by profound and learned commentaries, and by a translation of them into German. Professor Schleiermacher first arranged the dialogues according to the connexion of their subjects, and thus formed three groups: 1. the elementary dialogues, in which are contained the first indications of that which is the foundation of all the following: of dialectics, as the technical part of philosophy, of ideas, as the proper subject of it, therefore of the possibility and the conditions of knowledge, in which, however, the theoretical is separated from the practical. In this class he places the Phædrus, Lysis, Protagoras, Laches, Charmides, Eutyphron, Parmenides, likewise the apology of Socrates, Criton, Ion, the Lesser Hippias, Hipparchus, Minos, Alcibiades II. 2. Those dialogues which treat of the application of these principles, of the difference between philosophical and common knowledge in their application to the two great sciences, ethics and physics. These are the Gorgias, Theætetos, Menon, Euthydemus, Cratylus, the Sophist, the Politician, the Banquet, Phædon, Philebus, &c. 3. Those in which the theoretical and practical become one and the same. These are Timæus, Critias, the Republic, the Laws, Epinomis. In addition to Schleiermacher, we would mention Tiedemann's *Dialog. Plat. Argumenta exposita et illustrata* (Bipont, 1786), and Tennemann's System of the Platonic Philosophy (Leipsic, 1792—95, 4 vols.); further, Heusde's *Initia Philosophiæ Platonicæ* (Utrecht, 1827). The best editions of Plato are, besides the Aldine, that of Henry Stephens (1578, 3 vols., folio; the Frankfort edition, 1602, folio, and the Bipont edition, 1781—86, 13 vols.). The latest are by Bekker (q. v.), Stallbaum and Ast. A German version of Plato is publishing at present by Schleiermacher, third edition, with illustrative treatises. Pr. Cousin has translated Plato's Works into French—*Œuvres complètes de Platon* (Paris, 1827, 7 vols.). The effect which a mind so vast was calculated to produce was very great. The school of Plato was called the *academy*, and has been generally divided into the old, middle and new. Among the philosophers of the first division are Speusippus, Xenocrates, Polemo, Crates, Crantor, the immediate followers of Plato. The founder of the middle academy is Arcesilaus, whose successors were Lacydes, Evander, Hegesinus and Carneades, the last of whom was the founder of the new academy: his successor was Clitomachus. His pupils, Philo and Charmides, again deviated from the doctrines of the new academy, and approached more to those of Plato himself. Some others adopt a fourth division, whose founder was Philo, who again took the dogmatic direction. Cicero (*Qu. Acad.* i, 43 et seq.) only adopts the division of old and new. Aristotle, Plato's pupil for many years, became the founder of the peripatetic school. (See that article, and *Aristotle.*) The difference between these great men is striking: Göthe calls Aristotle "a man of an architectural genius, who seeks for a solid basis for his building, but looks no farther, who describes an immense circuit for its foundations, collects materials from all sides, arranges them, lays one above the other, and thus ascends in regular form pyramidally, while Plato, like an obelisk, nay, a flame, seeks the heavens." Aristotle was critical, scrutinizing whatever came within the range of his comprehensive mind, while Plato brings every thing into connexion with his elevated view of the human soul; and we may be allowed to mention the beautiful conception of the difference of these powerful minds, in Raphael's School of Athens—one of the grandest pictures ever produced, of which they form the two chief personages—Aristotle, with a look of deep reflection, and eyes directed forward, while Plato lifts up his right arm, as if testifying of the worlds above, like a prophet. Plato was considered, when Christianity began to spread, as the firmest prop of heathenism; but the followers of the new faith attempted to reconcile his doctrines with the Christian. The chief supporters of his doctrine at this time were the *New Platonists* (q. v.), also called *Alexandrian philosophers*, and *eclectics*. Aristotle had the decided predominance until the fourteenth century, when Platonism revived, and the greatest struggles ensued between the Platonists and the Aristotelians. Gemisthius Pletho inspired Cosmo de' Medici with a love for Plato, so that the duke established a Platonic academy, took the son of his physician, the translator of Plato, Marsilius Ficinus, into his house, and gave him a villa near to his own of Careggi. Cousin's and Schleiermacher's translations and commentaries on Plato will undoubtedly contribute much to make him better understood by the English and Americans.

Platoff, or **Platow**, hetman of the Cossacks, was born in the southern part of Russia, about 1763. He entered young into the military service, and in 1806 and 1807, he had the rank of lieutenant-general in the Russian army sent to the assistance of Prussia. He was afterwards employed against the Turks in Moldavia, and was made a general of cavalry. When the French invaded Russia, in 1812, Platoff was again called into actual service, and, though he was defeated at Grodno, and obliged to retire into the interior, he returned during the retreat of the enemy from Moscow, and, with twenty regiments of Cossacks, he harassed them in their flight, and contributed greatly to the advantages gained over them. In 1813, after the battle of Leipsic, he entered France, and was at Paris with the emperor Alexander, whom he accompanied to England. At London, he was the object of popular admiration, and a magnificent sabre was presented to him. In 1815, he commanded the Cossacks destined for the second invasion of France, and again made his appearance at Paris. After the restoration of peace, he retired to Tcherkash, on the river Don, where he died in February, 1818.

Platonic Love. (See *Plato.*)

Platonists, New. (See *New Platonists.*)

Plato's Republic. (See *Plato.*)

Platte, or **La Platte River**, in Missouri Territory, rises in the Rocky mountains, and flows east into the Missouri. It is of great length, and is 600 yards wide at its mouth.

Plattsburg; a post-town, and capital of Clinton county, New York, on a fine spacious bay, on the west side of lake Champlain, at the mouth of Saranac river. It is 160 miles north of Albany, and 60 south of Montreal; lon. 73° 26′ W.; lat. 44° 42′ N.; population, in 1820, 3519; in 1830, 4913. The U. States' barracks are four miles above the village, on the Saranac. The village is handsomely laid out, and contains a bank and several manufactories. During the last war with Great Britain, this town was twice in the hands of the enemy, and the last time was nearly reduced to ashes. It is also famous, in that war, for being the point of attack for the British army of 14,000, under sir George Prevost. This army was aided by the British fleet, having 95 guns and 1050 men, under the command of commodore Downie. The American army stationed at the forts of Plattsburg, consisting of 2500 men, commanded by general Macomb, effectually resisted the enemy. The American fleet, commanded by commodore Macdonough, had 86 guns and 826 men, and totally destroyed the fleet of the enemy. The British loss in killed, wounded, and deserters, was estimated at 2500; the American loss, both on land and water, was only 235. This battle was fought Sept. 11, 1814.

Platypus (*ornithoryncus*). This extraordinary animal, which is peculiar to New Holland, almost appears to be a link between the aquatic birds and the mammalia. It is about a foot long, having a flattened body like that of the otter, covered with a thick soft fur, moderately dark brown above, and whitish beneath. The muzzle is elongated, enlarged and flattened, resembling the beak of a duck, like which its edges are armed with transversal plates. The teeth are situate in the back part of the mouth, two on each side, with flat tops and no roots. The feet are furnished with a membrane uniting the toes, and in the anterior feet extending beyond the nails. The tail is flat and obtuse. From the form of this animal it is fitted to reside in the water, and it must feed on soft food, as the structure of the beak will not enable it to grasp any thing firmly. From the accounts of travellers, it seems probable that these animals produce eggs; if so, their alliance to birds becomes still greater; this fact, however, is not substantiated. The platypus is armed with a spur on each hind leg, having a canal in it similar to that in the poison-fang of venomous serpents, and, like this, also, furnished with a gland at base, secreting a fluid; hence it is likely that wounds produced by them would be dangerous. They have no external ear, and their eyes are very small. There is a genus closely resembling the platypus, also peculiar to New Holland, viz. *echidna*, or *spinous ant-eater*, which, however, is not amphibious. (See Memoirs on the anatomy of this animal, by sir E. Home, Meckel, Cuvier, St. Hilaire, &c.)

Plautus, Marcus Accius, one of the oldest Roman comic writers, was born at Sarsina, in Umbria, and flourished, about B. C. 200, as the manager of a company of players in Rome. Aulus Gellius tells us that, for some time, he was in a very destitute condition, and was compelled to earn his livelihood by turning a mill. He must have possessed an inexhaustible fund of gayety, since, even in a condition so unfavorable to poetry, he seems to have composed some comedies. About twenty of them, principally entire, have come down to us. The names are either borrowed from the persons of the piece, as Amphitryon (the husband of Alcmena, mother of Hercules), Curculio (Corn-Worm, the name of a sponger), Epidicus, Pseudolus, Stichus (names of slaves), Bacchides (name of two frail fair ones), Menæchmi (the name of a pair of twins), Miles Gloriosus (the Braggart Soldier), Captivi (the Two Captives), Mercator (the Merchant), Pœnulus (the Carthaginian), Persa (the Persian), Truculentus (the Fierce), or from something which serves as a foundation of the play, as Aulularia, Cistellaria, Mostellaria, sc. Fabula (the Pot or the Treasure, the Casket, the Ghost). Plautus's merit consists in having introduced into the Latin language the plays of Diphilus, Epicharmus and others, by translations or imitations, and by this means contributed to improve and enrich it. The ancients praise his pithy, antique language; and, according to Varro, the Muses, if they had spoken Latin, would have used the language of Plautus. The wit and sententiousness of the old comedian were no less admired. Much may be learnt from Plautus of the language of conversation and common life, although much of it is obsolete and not to be imitated. Much, too, is vulgar, the jests often low, and sometimes obscene. The subject of his pieces is frequently an obscene story, humorously treated. In general, his dialogue has more merit than his plots and dramatic action. An excellent edition of the comedies of Plautus was issued by Ernesti (Leipsic, 1760, 2 vols.). A later edition, with a running commentary, appeared at Bipont in 1788 (3 vols.); another by Schmieder (Göttingen, 1804 to 1805, 2 vols.); and the latest by Bothe (Berlin, from 1809 to 1811), in four volumes. There is an English translation, by Thornton, in five volumes (1769).

Playfair, John; a distinguished natural philosopher and mathematician, born at Bervie, near Dundee, in Scotland, in 1749. His father was a parochial clergyman of the Scottish church. Having finished his education at the university of St. Andrews, he received ordination, and succeeded to his father's benefice in 1772. After holding it some years, he resigned it, and, going to Edinburgh, obtained the mathematical chair in that university. In 1778, he published, in the Philosophical Transactions, a paper On the Arithmetic of Impossible Quantities; and on the establishment of the royal society of Edinburgh, he was appointed one of the secretaries. To the first volume of its Transactions he contributed an Account of the Life and Writings of Matt. Stewart, Prof. of Mathematics at Edinburgh, and an essay On the Causes which affect the Accuracy of Barometrical Measurements; and several other communications from him appeared in the subsequent volumes. Professor Playfair devoted much time to the study of geology; and, in 1816, visited the Alps, for the purpose of making geological observations on the structure of those mountains. He adopted the opinions of doctor James Hutton, which he defended in his Illustrations of the Huttonian Theory of the Earth (4to.). His death took place at Edinburgh, July 20, 1819. Besides the productions already noticed, he was the author of Elements of Geometry (8vo.); Outlines of Natural Philosophy (2 vols., 8vo.); and of a dissertation on the Progress of the Mathematical and Physical Sciences since the Revival of Letters (first published in the Supplement to Encyc. Britannica, reprinted separately in Boston, 1 vol., 8vo.). His works, collected in four volumes, with a memoir prefixed, appeared in Edinburgh in 1822.

Plebeians (*plebs*), among the Romans; the people, or that class of citizens which did not belong to the senators (see *Patricians*) or knights (see *Equestrian Order*); in the later ages of the republic, all those who had no public station, but lived as private individuals on their own resources, and, in general, all whose fortunes did not amount to at least 400,000 sesterces; they were mechanics, merchants, soldiers, &c. The poorer classes in particular, who lived principally by the largesses made by the state, or the rich, or by their patrons, and by the sale of their votes (which was forbidden by law), were called *plebeians*. A distinction was made between the *plebs rustica* and the *plebs urbana;* the latter comprising the industrious classes, the mechanics and shopkeepers, as well as the numerous idlers and paupers, &c., living in the city; the former, the citizens residing in the country, who lived by agriculture, and were the most respectable. (For an account of the struggles of the patricians and plebeians, see *Rome*.) In the most flourishing period of the republic, after the death of Sylla, the number of Roman citizens was about 400,000, nearly half of whom lived in Rome and its vicinity, and formed, after deducting the senators and knights, the third estate.

Plebis-scita. (See *Civil Law*.)

Pledge, or **Pawn**, is a species of bailment, being the deposit or placing of goods as security for the payment of money borrowed, or the fulfilment of an obligation or promise. It is distinguished from a mortgage of chattels, by the circumstance that the legal property in the chattel mortgaged is in the mortgagee, whereas the legal ownership of goods pawned remains in the pawner, though, according to the definition of a pawn and pledge, the pawnee not only has the right of possession, but must be in possession. If the money is not paid at the time stipulated, the pawn may be sold by the pawnee, who may retain enough of the proceeds to pay the debt intended to be secured. In some cases the terms of the deposit are the forfeiture of the pawn in case the pawner does not fulfil the promise or obligation to guaranty which the pawn is given.

Pleiades; the seven daughters of Atlas, who, being pursued by Orion, were changed, by Jupiter, into doves. They were translated to the heavens, and form the assemblage of the Seven Stars in the neck of Taurus, called by the Latins *Vergiliæ*. There are, however, only six stars visible in Pleiades—a fact noticed by Ovid. The *Poetical Pleiades* is a name given, by the Greeks, to seven celebrated poets, of the time of Ptolemy Philadelphus. (See *Alexandrian School*.) A French Pleiades was formed in imitation of it, in the reign of Henry II; it consisted of Ronsard, du Belloy, Jodelle, &c.

Pleonasm (from πλεονασμος, a redundancy), in rhetoric, is a figure of speech by which we use more words than seem absolutely necessary to convey our meaning, in order to express a thought with more grace or greater energy; it is sometimes also applied to a needless superabundance of words.

Plesiosaurus. (See *Organic Remains*.)

Plessis is found in a number of French geographical names, and is derived from the Low Latin *plexitium*, signifying a *hedge*, *fence*.

Pleurisy (*pleuritis*); an inflammation of the pleura, or membrane which lines the internal surface of the cavity of the breast, and covers the external surface of the lungs. The pleurisy is generally caused by colds, rheumatism, bleeding, &c. It comes on with an acute pain in the side, and is accompanied by a difficulty of breathing, attended with pain, by coughing and feverish symptoms. At first the cough is dry, but is afterwards commonly attended with expectoration. The inflammation then disappears, but is sometimes succeeded by suppuration, and the lungs sometimes become attached to the walls of the breast. The disease is not dangerous if the patient has not been previously attacked by it, nor in its first stages, nor if it is properly attended to in season. The application of leeches and other less antiphlogistic remedies, and blistering, are recommended.

Plica Polonica. The *Weichselzopf* or *plica Polonica*, derives its name from its most prominent symptom—the entangling of the hair into a confused mass. It is generally preceded by violent headaches, and tingling in the ears; it attacks the bones and joints, and even the nails of the toes and fingers, which split longitudinally. If so obstinate as to defy treatment, it ends in blindness, deafness, or in the most melancholy distortions of the limbs, and sometimes in all these miseries together. The most extraordinary part of the disease, however, is its action on the hair. The individual hairs begin to swell at the root, and to exude a fat, slimy substance, frequently mixed with suppurated matter, which is the most noisome feature of the malady. Their growth is, at the same time, more rapid, and their sensibility greater, than in their healthy state; and, notwithstanding the incredulity with which it was long received, it is now no longer doubtful, that, where the disease has reached a high degree of malignity, not only whole masses of the hair, but even single hairs, will bleed if cut off, and that, too, throughout their whole length, as well as at the root. The hairs, growing rapidly amidst this corrupted moisture, twist themselves together inextricably, and at last are plaited into a confused, clotted, disgusting-looking mass. Very frequently they twist themselves into a number of separate masses, like ropes; and there is an instance of such a *zopf* growing to the length of fourteen feet on a lady's head, before it could be safely cut off. Sometimes it assumes other forms, which medical writers have distinguished by specific names, as the *bird's nest plica*, the *turban plica*, the *Medusa head plica*, the *long-tailed plica*, the *club-shaped plica*, &c. The hair, however, while thus suffering itself, seems to do so merely from contributing to the cure of the disease, by being the channel through which the corrupted matter is carried off from the body. From the moment that the hair begins to entangle itself, the preceding symptoms always diminish, and frequently disappear entirely, and the patient is comparatively well, except that he must submit to the inconvenience of bearing about with him this disgusting head-piece. Accordingly, where there is reason to suspect that a *Weichselzopf* is forming itself, medical means are commonly used to further its out-breaking on the head, as the natural progress and only true cure of the disease; and, among the peasants, the same object is pursued by increased filth and carelessness, and even by soaking the hair with oil or rancid butter. After the hair has continued to grow thus tangled and noisome for a period, which is in no case fixed, it gradually becomes dry; healthy hairs begin to grow up under the plica, and, at last, "push it from its stool." In the process of separation, however, it unites itself so readily with the new hairs, that, if not cut off at this stage, it continues hanging for years, an entirely foreign appendage to the head. There are many instances of Poles, who, suffering under poignant ailments, which were, in reality, the forerunners of an approaching *Weichselzopf*, have in vain sought aid in other countries, from foreign physicians, and, on their return, have found a speedy, though a very disagreeable cure, in the breaking out of the plica. But till the plica has run through all its stages, and has begun of itself to decay, any attempt to cut the hair is attended with the utmost danger to the life of the patient; it not only affects the body by bringing on convulsions, cramps, distortion of the limbs, and frequently death, but the imprudence has often had madness for its result; and, in fact, during the whole progress of the disease, the mind is, in general, affected no less than the body. Yet, for a long time, to cut off the hair was the first step taken on the approach of the disease. People were naturally anxious to get rid of its most disgusting symptom, and they ascribed the melancholy effects that uniformly followed, not to the removal of the hair, but merely to the internal malady, on which this removal had no influence; and medical men had not yet learned that this was the natural outlet of the disease. Even towards the end of the last century, some medical writers of Germany still maintained that the hair should instantly be cut; but the examples in which blindness, distortion, death, or insanity, has been the immediate consequence of the operation, are much too numerous to allow their theoretical opinion any weight. The only known cure is to allow the hair to grow till it begins to rise pure and healthy from the skin, an appearance which indicates that the malady is over; it is then shaved off, and the cure is generally complete, although there are cases in which the disease has been known to return. The length of time during which the head continues in this state of corruption, depends entirely on the degree of malignity in the disease. The *Weichselzopf*, at once a painful, a dangerous, and a disgusting disease, is not confined to the human species; it attacks horses, particularly in the hairs of the mane, dogs, oxen, and even wolves and foxes. Although more common among the poorer classes, it is not peculiar to them, for it spares neither rank, nor age, nor sex. Women, however, are said to be less exposed to it than men, and fair hair less than brown or black hair. It is contagious, and, moreover, may become hereditary. Among professional persons, great diversity of opinion prevails regarding its origin and nature. According to some, it is merely the result of filth and bad diet; but, although it certainly is more frequent among the classes who are exposed to these miseries, particularly among the Jews, whose beards it sometimes attacks as well as their locks, it is by no means confined to them; the most wealthy and cleanly are not exempt from its influence. Others again, allowing that it is much aggravated by uncleanliness and insalubrious food, set it down as epidemic, and seek its origin in some particular qualities of the air or water of the country, just as some have sought the origin of *goitres;* but, though more common in Poland than elsewhere, it is likewise at home in Livonia and some other parts of Russia, and, above all, in Tartary, from whence, in fact, it is supposed to have been first imported during the Tartar invasion, in the end of the thirteenth century. A third party has made it a modification of leprosy. The more ignorant classes of the people believe that it is a preservative against all other diseases, and therefore adorn themselves with an inoculated *Weichselzopf.* (See Russell's *Tour in Germany.*)

Plinth. (See *Architecture*, vol. i, p. 338.)

Pliny (Caius Plinius Secundus), the elder, a Roman knight, was born at Verona, A. D. 23. He was one of the greatest scholars of Rome. He devoted himself to jurisprudence, but made a campaign into Germany, and afterwards filled many public offices, among them the office of a procurator in Spain. His uncommon spirit of inquiry was aided by an unwearied industry. Every moment that was not employed in the business of his office, he appropriated to his studies. He was a very early riser, even in winter; very often did not retire to bed at all, and used to read while at meals, and in the bath, or had some one to read to him. He diligently noted down every thing of importance; and often said, that no book was so bad, but that something might be learned from it. If he was not able to write himself, he dictated. In this way, Pliny, notwithstanding his many public affairs, wrote many important works, which give proof of his very extensive learning. He finally became a victim to his curiosity. Being one day in the neighborhood of Vesuvius, a terrible eruption of this volcano (A. D. 79) induced him to approach for the purpose of viewing it closely, notwithstanding the danger to which he was exposed. The hot ashes even fell upon his vessel; still he continued to take note of every thing he saw. While the earth around him threatened, he passed the night quietly with a friend not far from the mountain, and the next morning, on the sea-shore, he perished by a suffocating vapor which spread over the whole country. The writings of this diligent and active man are principally lost; among them the work on the war in Germany, and his Universal History. The *Historia Naturalis*, or *Historia Mundi*, in 37 books, is extant; it is a rich collection of facts of every kind, from the whole circle of nature and science, and also from the history of art, which is the more valuable, as Pliny drew from many lost books. Of the old critical editions, that of Hardouin (Paris, 1723), is the best.

Pliny (Caius Plinius Cæcilius Secundus), the younger, a nephew of the former, was born A. D. 62, at Comum (Como). Having been adopted by his uncle, he learned to make a wise use of time, applied himself early, with the greatest assiduity, to the study of eloquence and philosophy, and, when a boy of thirteen years of age, made an attempt to write a tragedy in the Greek language. In Syria, where he was the commander of a legion, he enjoyed the society of the philosopher Euphrates, and afterwards made his appearance in Rome as an advocate with success, filled several public offices, and was consul in his thirty-ninth year. By the favor of the emperor Trajan, he was appointed augur and governor of Pontus, in Bithynia, which office he administered for two years, to the general satisfaction. He was one of the most distinguished, and best, and we may also add, one of the most fortunate men of his age. He had most of the requisites for the enjoyment of life—a cultivated mind, a generous heart, friendship and love. As an author he labored with ardor. He attempted several departments of literature, both in prose and poetry. Of his writings, only a collection of letters, in ten books, and a panegyric on Trajan, remain. The letters are addressed to different friends, some of them to the emperor, and are on various subjects. Their elegance and intellectual tone make them attractive and very instructive. In his Panegyric on Trajan, he is, as some think, extravagant in his praise and in his rhetorical ornaments. It is not, indeed, to be recommended as a model, yet it is an important work for the history of the noble emperor and his time. The Letters and the Panegyric were edited together, with notes, by Gesner (Leipsic, 1739); Ernesti (Leipsic, 1770), and others. A later critical edition of the Letters, with notes, was edited by Gierig (Leipsic, 1800), and the complete works of Pliny, by the same (Leipsic, 1806); afterwards by G. H. Schäfer (Leipsic, 1805); and by Titze (at Prague, in 1820). The Panegyric was edited by Gierig, with notes (Leipsic, 1796), who also published a work On the Life, Moral Character and Literary Reputation of the Younger Pliny. The Epistles of Pliny have been translated into English by lord Orrery and Mr. Melmoth.

Plotinus, the most distinguished among the New Platonists, was born at Lycopolis, in Egypt, 205 A. D., is said to have studied philosophy at Alexandria, under Ammonius, travelled, at the age of thirty-nine, into the East, to learn the doctrines of the Magi, and in his fortieth year, became a teacher of philosophy in Rome. His writings and instructions excited the most enthusiastic admiration among his disciples. He died A. D. 270, in Campania, his death having been hastened by his austerities. His pupil Porphyry wrote his Life, and arranged his writings. Marsilius Ficinus first edited and translated them. Creuzer has published his Dissertation on Beauty (Heidelberg, 1814), and Engelhardt has translated his Enneades into German, with a commentary (Erlangen, 1820—1823.) (See *New Platonists.*)

Plough Monday; the next Monday after Twelfth Day. On Plough Monday, the ploughmen in the northern part of England used to draw a plough from door to door, and beg money for drink.

Plover (*charadrius*); a genus of the *grallæ*, or waders, distinguished by having a moderate sized compressed beak, enlarged at the end, and the hinder toe exceedingly small, not touching the ground. They inhabit all parts of the world, traversing temperate climates in the spring and autumn. They are gregarious, and are generally seen in meadows, or on the sea-shore, in search of food, which they procure by stirring the earth or mud with their feet, and thus inviting worms and aquatic insects to the surface. The female lays about four eggs, in a rude nest in the sand. Their flesh is excellent, and hence they are much sought for by sportsmen. There are many species in the U. States, some peculiar to the country, and others also found in Europe. They are thus enumerated by C. Bonaparte: *C. semipalmatus* (ring plover), peculiar to America; *C. melodius* (ring plover), peculiar to America; *C. Wilsonius* (Wilson's plover), peculiar to America; *C. vociferus* (killdeer), peculiar to America; *C. pluvialis* (golden plover), inhabits throughout the world; *C. helveticus* (black bellied plover), inhabits the north of both continents. The ruddy plover belongs to the genus *tringa*, and is also found in both continents.

Plum (*prunus*); a genus of plants belonging to the *rosaceæ*, and now separated from the cherry, chiefly on account of the large oval fruit covered with a fine whitish dust, the oblong, compressed and acute stone, and the different manner in which the young leaves are folded. About a dozen species are known, all inhabiting the north temperate regions of the globe, and two or three of them natives of the U. States. They are small trees or shrubs, with alternate leaves, and white flowers, either solitary or disposed in fascicles in the axils of the ancient leaves. The common garden plum (*P. domestica*) does not seem to be a native of Europe, and probably was introduced from Syria. It is mentioned by Dioscorides and Theophrastus, and now is very generally cultivated throughout Europe, as well as in most parts of the U. States. It is a robust tree, of middling stature, seemingly adapted to every kind of soil, though most flourishing where it is light and a little sandy. The varieties are very numerous, and differ in color, taste, size and form; some are not larger than cherries, while others are nearly two inches in diameter; some are oblong or ovoid, and others perfectly globular; the color is either white, green, yellow, red, purple, blue or blackish; the taste acid, austere, insipid, sweetish or aromatic; the consistence of the flesh coriaceous, hard, soft, melting, dry or watery; all, however, have a smooth skin, which is always more or less covered with a fine whitish dust, easily removed by rubbing. The most esteemed of all these varieties is the green gage or *reine Claude*. (See *Green Gage.*) Our own country, however, produces a variety hardly, if at all, inferior, viz. the Washington plum: the form of this last, and the perfume which it emits before being cut, are similar to that of the green gage, but the skin is dull yellow, assuming an orange cast on the side exposed to the sun, and is more or less mottled with crimson dots; the flesh is yellow, firm, very sweet and luscious, and separates freely from the stone. The origin of the Washington plum is remarkable, and deserves a passing notice. The parent tree was purchased in the New York market, and remained barren for several years, when it was struck by lightning, and destroyed. The root afterwards threw up a number of vigorous shoots, which were suffered to remain, and in due time produced fruit. The foliage of this tree is also among plums remarkable for its beauty. Almost all the varieties of plums may be dried and converted into prunes, but those which are most fleshy, and best retain their quality, are preferred. Prunes now form a considerable article of commerce, and are imported chiefly from France, particularly from the port of Marseilles. Plums may also be preserved in various manners, in spirits of wine or sugar, or formed into marmalade, jellies, &c. The wood of the plum tree is hard, compact, traversed with reddish veins, and susceptible of a fine polish. It is frequently employed by turners and cabinet makers, but requires to be thoroughly dried. The sloe (*P. spinosa*) is a thorny shrub, growing wild in most parts of Europe, and bearing a small, round, and nearly black fruit, of an extremely austere taste. The juice of this plum is frequently employed to communicate a red color and astringent flavor to wines.

Plumbago, or Graphite. This valuable mineral is sometimes found in thin, irregular, six-sided tables; but more generally in scales, or compact. Lustre metallic; color iron-black, or dark steel-gray; streak black, shining; opaque. It is ductile and flexible in thin laminæ; hardness between talc and gypsum; specific gravity 2. It consists of carbon 96, and iron 4. In a high degree of heat, it is combustible, and leaves a residue of oxide of iron. It is infusible alone, and with additions. It sometimes occurs in beds in primitive rocks, particularly those of the trappean variety. When found in primitive limestone, it is disseminated in scales, after the manner of talc. It is also found in the coal formation. Its most remarkable depository is at Borrowdale, in Cumberland, England, where it exists in a bed of trap, alternating with clay slate. It occurs crystallized in the limestone of Orange county, New York, and Sussex county, New Jersey, and exists in large fibrous masses near Rogers's rock on lake George, New York; but its only valuable locality in the U. States is at Sturbridge, in Worcester county, Massachusetts, where it forms veins in gneiss about a foot in width. It was wrought by the French about 100 years ago; since which time it has been neglected until within a few years, but is now vigorously and successfully explored by an enterprising company. The chief employment of plumbago is in manufacturing pencils and crucibles; the latter particularly for the mint. It is also used for giving a gloss to iron stoves and railings, and for diminishing the friction of machinery.

Plumber's Solder. (See *Bismuth*, vol. ii, p. 116.)

Plum Island; a sandy beach and tract of salt meadow, extending from Newburyport bar, at the mouth of Merrimack river, to Ipswich bar, at the mouth of Ipswich river. It is nine miles long, nearly one wide, and is covered on the side next the sea with sand, which is blown up into little hills and ridges. These sandy elevations are covered with bushes, bearing the beach plum in great perfection. A turnpike and bridge lead from Newburyport to this island. It is much resorted to in September and October, when the plums are ripe.

Plunkett. William Conyngham Plunkett, lord Plunkett, the son of a Presbyterian clergyman in the north of Ireland, was born in 1765, and educated at Trinity college, Dublin, where, as a reward for his classical merit, he obtained a scholarship. In 1787, he took the degree of bachelor of law, and he was then called to the bar under the auspices of lord Yelverton. His reputation in the courts soon became great, and his practice proportionally extensive. In 1797, he held a seat in the Irish parliament, and voted against the union. In 1803, he was appointed solicitor-general for Ireland, and in 1805, attorney-general and privy counsellor. On the trial of Robert Emmet, he was counsel for the prosecution, and was accused of some unfairness towards the prisoner; but from that charge he fully vindicated himself. Mr. Plunkett's practice, however, was chiefly in chancery, and he is described as displaying, in the complicated questions of that court, a mind at once subtile and comprehensive, with great power, acuteness and clearness of reasoning, conveyed in perspicuous, copious, yet condensed language. His manner as a forensic speaker was characterized by great simplicity and earnestness; he was not so eminent as some of his brethren for mere law learning. During the short administration of the whigs in 1806, he continued to fill the office of attorney-general in Ireland, but retired when his friends were displaced. In January, 1807, he first procured a seat in the imperial parliament, as one of the members for Midhurst; and in 1812, he was returned for the university of Dublin. In the house of commons Mr. Plunkett distinguished himself as an eloquent and argumentative speaker, particularly on the Catholic question. During the administration of lord Liverpool, he was again appointed attorney-general for Ireland, and in 1827 was raised to the peerage, under the title of baron Plunkett. Lord Plunkett was a constant and able advocate of the Catholic relief bill. In December, 1830, on the formation of the whig ministry, he was made lord high chancellor of Ireland.

Plurality is used in contradistinction to *majority*, in reference to votes given in at elections. *Majority* signifies at least one more than half of all the votes given in, whilst *plurality* means only the greatest number of votes, so that if there are three or more candidates for an office, one of them may have a plurality without a majority, which latter is required in many cases by law. If none of the candidates for the presidency of the U. States has a majority, the election of the president devolves upon the house of representatives of the U. States, who are bound to elect one of the three candidates who had the most votes—a case which occurred when Mr. John Q. Adams was chosen. In France, majority, in this sense, is called *majorité absolue*.—*Plurality of benefices* signifies the holding of more benefices than one by the same clergyman (pluralist) at the same time.

Plus, more, in mathematics, signifies addition; the sign by which it is indicated is +; thus, A+B, which is read, A plus B, denotes that the quantity A is to be added to the quantity B. *Plus*, or its sign, +, is also used to indicate a positive magnitude or relation, in opposition to *minus* (—), which indicates a negative.

Plutarch; a learned and prolific Greek writer, born at Cheronæa, in Bœotia, A. D. 50. According to some, Trajan was his pupil. In the reign of that emperor, he was invested with some civil offices in Rome, where he taught philosophy; and, having returned to his own country, he died there in 120 or 130. He is said to have written about 300 philosophical and historical works, of which 125 are extant, but some of these are falsely ascribed to him. The philosophical works, which commonly go under the name of *Ethica* or *Moralia*, explain the Platonic doctrines, combat the Stoic and Epicurean, and treat of various practical subjects in a popular way; they show him to have been of an active turn of mind, and contain happy applications of extensive learning. His historical writings are yet more distinguished, and are valuable as throwing much light on ancient history, particularly his Lives (44) and Parallels of illustrious Greeks and Romans (edited by Bryan, London, 1729, 5 vols., 4to.; Leipsic, 1812—14, 9 vols., 12mo.; by Coray, Paris, 1809—17, 6 vols.; translated into English by the Langhornes); his Greek and Roman Researches, Iris and Osiris, or of Egyptian Antiquities, and Apothegms. The treatise On the Doctrines of Philosophers (edited by Cassini, 1751, and by Beck, 1786), which contains valuable materials for the history of philosophy, is probably not by him. His manner of treating his subject is easy, often superficial, and this is also the character of his style, which is censured as being too much ornamented by quotations from poets and philosophers. Among the editions of his complete works, those of H. Stephens (Paris, 1572, 13 vols.); of Rualdus (Paris, 1624, 2 vols., folio); of Frankfort (1599 and 1620, 2 vols., folio); of Reiske, (Leipsic, 1774—82, 12 vols.), and of Hutten (Tübingen, 1791—1805, 14 vols.), are the best. Amyot's French translation of the Lives (*Les Vies des Hommes Illustres*) was republished at Paris in 1825 (10 vols.), with a *Notice sur Plutarque* by Coray. The name *Plutarch* is often given to a collection of lives of distinguished men. Such collections exist not merely in English, but also in French, Italian, Russian, German and Swedish.

Pluto (among the Greeks, *Ais*, *Aides*, *Hades*, the Invisible), third son of Saturn and Rhea, a brother of Jupiter and Neptune, to whom, on the partition of the world, fell the kingdom of the shades. There, under the surface of the earth, he is enthroned as the ruler of the dead. As far beneath his habitation as the heaven is above the earth, lies Tartarus, the access to which is by a gate guarded by himself; thither, after death, must all men descend. Powerful, terrible, inflexible to prayers or flattery, is the dark-haired god. Hercules, however, carried off his dog, the fearful Cerberus, who lies before Pluto's dreadful abode. He rides on a chariot drawn by four black horses, which he guides with reins of gold. His helmet makes the wearer invisible. So says the *Iliad*. The *Odyssey* gives a somewhat different account. It does not explicitly place his habitation beneath the earth. Ulysses sailed from Ææa with a north wind, passed over the ocean, and landed near the lofty rocks and the grove of Proserpine (q. v.), where the Cimmerians dwell in everlasting darkness. Having arrived there, he proceeded along the ocean until he reached the nocturnal darkness, the abode of Aïs, where dwell the dead. But according to Hesiod, on the western margin of the northern hemisphere, wrapt in eternal darkness, one cleft, in a cavity under the surface of the earth, leads down to the dead, another to Tartarus. Yet both of these subterranean abysses are mentioned by him under the latter name. Homer, and those poets who followed next after him, described the realms of Hades as being under the surface of the earth, where the dead, like the living on earth, good and bad, dwell together, and a few enemies of the gods alone suffer torments; Tartarus was a distinct region. But as philosophy, by bolder conjectures concerning the surface of the earth, and, finally, by the doctrine of a floating sphere, did away the old notions of Tartarus, and the belief of a future retribution gained ground; the realms of the dead, placed at first under the surface of the earth, and then by some in the centre, were separated into Elysium and Tartarus. These changes had also an influence on the notions entertained respecting the sovereign of the lower world. He not only gained in outward power and supremacy, but the conceptions of his character were changed; he became a benevolent being, who held in his hand the keys of the earth, and blessed the year with fruits; for from the abyss of night come all riches and plenty. It is therefore not strange, that the later ages, confounding Hades with Plutus (q. v.), called him *Pluto*, and attributed to him dominion over the treasures concealed in the bowels of the earth. He fought with his brothers against the Titans, and received from the Cyclops, whom he had released, the helmet that makes its wearer invisible, which he lent to Mercury in the war of the giants, and to Perseus in his expedition against the Gorgons, and which afterwards came into the possession of Meriones. The Furies and Charon are his ministers. He judges every open and secret deed, and to him are subordinate the three judges Æacus, Minos and Rhadamanthus. Bacchus, Hercules, Orpheus and Ulysses entered his realms alive, and left them uninjured; but Theseus and Pirithous, whose object is said to have been the abduction of his wife, he caused to be chained, though the former is said to have been subsequently released by Hercules. The worship of Pluto was extensively spread among the Greeks and Romans. The cypress, the box, the narcissus, and the plant adiantum (maiden-hair), were sacred to him: oxen and goats were sacrificed to him in the shades of night, and his priests were crowned with cypress. He is represented in gloomy majesty, his forehead shaded by his hair, and with a thick beard. His head is sometimes covered with a veil. He frequently also wears his helmet, or a crown of ebony, or a wreath of adiantum or narcissus. In his hand he holds a two-forked sceptre, a staff or a key; by his side is Cerberus. He is either seated on a throne of ebony or in a chariot. His epithets are "the subterranean Jupiter," "the Stygian," &c.

Plutus, son of Iasion and Ceres, was the god of riches. His genealogy shows the meaning of the allegory, which is merely this, that "Agriculture produces wealth." At first Plutus had the use of his eyes, but Jupiter struck him blind, because he confined his gifts to the good; and he thenceforth conferred them equally on the good and the bad. His residence was under the earth. He is weak, and limps when he comes to mortals, but swift-footed or winged when he leaves them. Fortune carries him in her arms, and he also forms one of Minerva's retinue. He is sometimes confounded with Pluto. (q. v.)

Pluviose. (See *Calendar*, vol. ii, p. 403.)

Plymouth; a borough town of England, in Devonshire, and, on account of its harbors and the docks in its neighborhood, one of the most important maritime places in the kingdom. It is situated at the head of the capacious haven of Plymouth sound, on the eastern side of a tongue of land formed by the estuaries of the rivers Plym and Tamar, which here empty themselves into the sea. Plymouth stands at the mouth of the Plym, within about a mile and a half of the town of Devonport, formerly called *Plymouth Dock*, to which it is united by the intervening town of East Stonehouse. The town having gradually risen from the condition of a small fishing town to its present size, most of the streets are irregular, and by no means elegant or commodious; but the new parts of the town are handsome, and are spreading rapidly. The public buildings are, the custom-house, the exchange, the Athenæum, the public library, the theatre, the royal hotel, places of worship, the classical and mathematical school, the mechanics' institute, &c. Plymouth is divided into two parishes. Of the two parish churches, the most ancient is that of St. Andrew, built previously to 1291, a handsome building of the Gothic order; Charles's church is also a Gothic structure. Among the charitable institutions, which are about thirty, are a work-house, a public dispensary, an eye infirmary, a lying-in charity, a public subscription school, alms-houses, Bible societies, &c. &c. Government has several military and naval establishments at this port. Of the fortifications, the most remarkable is the citadel, which was erected in the reign of Charles II. It is placed in a most commanding situation on the eastern end of the height called the *Hoe* (which shelters the town from the sea). It is exceedingly well fortified, and is constantly garrisoned. It contains the residence of the governor of Plymouth, and barracks for five or six hundred troops. Under the eastern walls of the citadel is the victualling office, an extensive range of buildings, containing the granaries and ovens for supplying the bread, as also the cellars and store-houses for wine, spirits, meat, &c. for the use of the king's vessels in harbor. The port of Plymouth is distinguished for its capacity, and the security which it affords in its several parts. It is capable of containing 2000 sail, and is one of the finest harbors in the world. It consists of three divisions or harbors,—Sutton pool, immediately adjoining the town; Catwater, an extensive sheet, formed by the estuary of the Plym; and the harbor or bay of Hamoaze. At the mouth of these harbors the great bay of Plymouth sound forms an excellent roadstead, which is now completely secure by the erection of the breakwater across its entrance. This work is an insulated mole, or vast heap of stones, stretching across the entrance of the sound, so far as to leave a passage for vessels at either end, and opposing a barrier to the heavy swell rolling in from the Atlantic. Its length is 1700 yards, the eastern extremity being about 60 fathoms to the eastward of St. Carlos's rocks; and the western, 300 west of the Shovel rock. The middle part is continued in a straight line 1000 yards, and the two extremities incline towards the northern side of the straight part in an angle of about 120 degrees. This great work was begun Aug. 12, 1812. During its progress, convincing proofs of its efficacy and utility were afforded. The expense of erecting the breakwater is estimated at £1,171,100. The Eddystone light-house is an important appendage to the harbor; the entrance of which would, without this beacon, be extremely dangerous. (See *Eddystone*.) Besides the importation of coals, culm, corn, wine, timber, and articles for home consumption, Plymouth carries on a considerable trade much promoted by the establishment of a chamber of commerce, in the year 1813. In the 18th year of Henry VI, Plymouth was incorporated as a borough, and it sends two members to parliament. It is governed by a mayor, recorder, and twelve aldermen, under whose care an active police is established. The garrison at this port is under the command of a military officer styled the *governor*, who is also generally commander-in-chief of the western district. The naval affairs are under the direction of the port-admiral, whose residence is at Devonport. The population of Plymouth, with Devon, is 61,212. It is 218 miles from London, and 44 from Exeter; lon. 4° 7′ W.; lat. 50° 23′ N.

Plymouth; a post-town, port of entry, and shire town of Plymouth county, Massachusetts, formerly the capital of the Plymouth colony, and the oldest town in New England. It was settled by the Pilgrims, who arrived in the May Flower, Dec. 22, 1620. It stands on a fine harbor of the same name, 36 miles south-east of Boston. The court-house is in lat. 41° 57′ N.; lon. 70° 42′ 30″ W. The township, though often divided, is still sixteen miles long, and five broad. The harbor is spacious, but shallow. The town has considerable commerce, and valuable manufactures of iron. An elegant hall has been erected for the use of the pilgrim society. Population, in 1820, 4348; in 1830, 4751. The Indians called this town *Accomack*. A part of the rock on which the pilgrims landed has been conveyed to the centre of the town.

Plymouth, Colony of. (See *New England.*)

Pneum'atics (from the Greek πνευμα, air) is that branch of natural philosophy which treats of the mechanical properties of elastic fluids (see *Elasticity*), the inelastic fluids belonging to the province of hydraulics and hydronamics (*see the articles*). The elastic fluid with which we are most familiar is atmospheric air; and it possesses all the mechanical properties, which it is necessary to notice in any elastic fluid. (The laws of pneumatics will be found treated of under the heads of *Air*, *Air-pump*, *Barometer*, *Pump*, *Acoustics*.)

Pneumony; inflammation of the lungs. The species, according to Cullen, are peripneumony and pleurisy. (See *Pleurisy*.) The most general cause of this inflammation is the application of cold to the body, which gives a check to the perspiration, and determines a great flow of blood to the lungs. It attacks principally those of a robust constitution and plethoric habit, and occurs most frequently in the winter and spring. Other causes are violent exertions in singing, speaking, or playing on wind instruments. The true peripneumony comes on with an obtuse pain in the chest or side, great difficulty of breathing (particularly in a recumbent position, or when lying on the side affected), together with a cough, dryness of the skin, heat, anxiety and thirst. If relief is not afforded in time, and the inflammation proceeds with violence, the face will alter to a purple color; an effusion of blood will take place into the cellular substance of the lungs, so as to impede the circulation through that organ, and the patient will soon be deprived of life. When it goes off by resolution, some very evident evacuation attends it; the evacuation which most frequently terminates the complaint, and which does it with the greatest effect, is a free and copious expectoration of thick white or yellow matter, slightly streaked with blood; and by this the disease is carried off generally in the course of ten or twelve days.

Po (*Padus*, *Eridanus*), the largest river of Italy, rises in mount Viso, in the Cottian Alps, Piedmont, at an elevation of 6000 feet above the sea. It flows from west to east through Piedmont, and from Pavia forms the southern boundary of the Lombardo-Venetian kingdom, which it separates from the Sardinian territories, from Parma, Modena, and the States of the Church. It receives, during a course of 320 miles, the Doria, Sesia, Tessino, Adda, Oglio and Mincio from the left, the Tanaro with the Stura, the Scrivia, Trebia, Taro, Lenza, Crostolo, Sechia, Panaro and Reno from the right, and empties itself by four mouths into the gulf of Venice. It is the main channel of commercial communication in Upper Italy, but it often does great mischief by its inundations, and it occasionally changes its bed; the swamps which it leaves are used for the cultivation of rice. In many parts of its course it is confined by dikes. The canal Gran Naviglio connects the Tessino with the Po, in a straight line.

Pocahontas, daughter of Powhatan, a celebrated Indian warrior in Virginia, was born about the year 1595. She discovered the warmest friendship for the English, who colonized Virginia when she was about twelve years old, and was eminently useful to the infant settlement. The first remarkable evidence of this attachment was displayed in 1607, when captain John Smith was taken prisoner by her countrymen, and brought before Powhatan, that he might put him to death. As the savage lifted his club to dash out the brains of the prisoner, whose head was laid on a stone at his feet, Pocahontas threw herself on Smith's body, and prevailed on her father to spare his life. Captain Smith was suffered to return to Jamestown, whence he sent presents to Powhatan and his benefactress. From this time, Pocahontas frequently visited the settlements of the whites, to whom she furnished provisions at times when they were particularly needed. In 1609, Powhatan invited Smith to pay him a visit, promising him a supply of provisions, but designing to entrap and destroy him and his party. Pocahontas, becoming informed of this plot, ventured through the forest at midnight, to disclose it to Smith. For three or four years she continued to assist the settlers in their distresses, and to save them from the effects of her father's animosity. During this period, the infant colony had experienced numerous vicissitudes of good and bad fortune. Smith had been driven by faction to England, and the rapacity of his successors plunged the settlement into an Indian war. An attack was made on one of the forts by the Indians under Powhatan, when the commander and thirty men were slaughtered, only one person, a boy, surviving, who was saved by Pocahontas. About the year 1612, Pocahontas,—from what cause is not ascertained, but most probably on account of her extraordinary attachment to the whites,—incurring her father's resentment, left her home, and visited the territory of Japazaws, chief of Potowmac. Captain Argall, coming up the river on a trading expedition, and conceiving that Pocahontas would be a valuable hostage, prevailed on Japazaws, by the tempting offer of a copper kettle, to surrender her to him. Powhatan refused to ransom her on the terms proposed. During her detention, Mr. Thomas Rolfe, an Englishman of respectable character, became attached to her, and offered her his hand. It was accepted, and, the consent of Powhatan being obtained, the marriage was solemnized in presence of the uncle of Pocahontas and her two brothers. This event relieved the colony from the enmity of Powhatan, and preserved peace between them for many years. In the year 1616, Pocahontas embarked with her husband, and several Indians, of both sexes, for England, where she was baptized, exchanging her Indian name for that of

Rebecca. She became a subject of curiosity to all classes of people. She received, in London, a visit from her former friend, captain Smith, whom, for some unknown purpose, she had been taught to believe was dead. When she first beheld him, she was overcome with emotion, and, turning from him, hid her face in her hands. During her stay in England, she advanced greatly in the knowledge of the English language, and her conversation was much sought after at court. Her residence among civilized men, however, was destined to be short. While about to embark from Gravesend, in company with her husband and an infant son, to revisit her native land, she died, at the age of twenty-two years, leaving one son, who was educated by his uncle, in London, and afterwards became a wealthy and distinguished character in Virginia. His descendants still exist in that commonwealth.

Pocock, Edward, an Oriental critic, a native of Oxford, was born November 8, 1604, and educated at Oxford. He prepared for the press such parts as had not been edited of the Syriac New Testament, from a manuscript in the Bodleian library (Leyden, 1630, 4to.). In 1629, Pocock was appointed chaplain to the English factory at Aleppo, and applied himself there to the cultivation of Oriental literature. He was employed by Laud to collect manuscripts and coins for the university of Oxford; and, in 1636, was invited to fill the newly founded Arabic professorship at Oxford. He subsequently undertook a second voyage to the East, and remained some time at Constantinople collecting ancient manuscripts. He returned in 1640, and assisted Selden in the publication of part of the annals of Eutychius, under the title of *Origines Alexandrinæ* (1641.) In 1648, he was appointed Hebrew professor at Oxford, to which the king, then a prisoner in the Isle of Wight, added the rich canonry of Christchurch; and the grant was confirmed by the parliament. In 1649, he published *Specimen Historiæ Arabum* (4to., reprinted at Oxford, in 1805). In 1650, he was deprived of his canonry, for refusing to subscribe the engagement required by the parliament. In 1655, he published some of the writings of Maimonides, under the title of *Porta Mosis*, and assisted in Walton's Polyglot Bible. In 1658 appeared his edition of the Annals of Eutychius, in Arabic, with a Latin version (2 vols., 4to.). The restoration, in 1660, enabled him to recover his church preferment; and the same year, he printed an Arabic translation of Grotius's work on the Truth of Christianity. In 1663, he produced an Arabic and Latin edition of the *Historia Dynastiarum* of Abulfaragius (2 vols., 4to.). He died at Oxford, in 1691, leaving Commentaries on the Minor Prophets, and some other works.

Pococke, Richard, a divine and Oriental traveller, was born in 1704, at Southampton, and received his education at Oxford. He engaged in a voyage to the Levant, in 1737, and, after visiting Egypt, Arabia, Palestine, and other countries, returned home, through Italy and Germany, in 1742. He published, in 1743—1745, A Description of the East (2 vols., folio), comprising an account of those parts of the world in which he had travelled, and containing much curious information. He was promoted to the see of Ossory, in 1756; whence, in 1765, he was translated to Elphin and Meath. He died of apoplexy the same year.

Podagra (from πους, foot, and αγρα, pain); that species of gout which recurs at regular intervals, attacking the joints of the foot, particularly of the great toe, and attended with sharp pain. The pain is described as resembling that produced by laying a burning coal upon the toe, or by forcing asunder the joint with a red hot iron. When the disease is violent, the whole foot is so sensitive, that the slightest pressure, the lightest touch, or even the agitation occasioned by a strong draught of air, causes the most excruciating pain. The first stage of the disease is peculiarly painful, on account of the inflammation of the surfaces of the joints, by which the nerves are affected. In a week, or sometimes a fortnight, the inflammation subsides, the pain ceases, and the part becomes swollen. The swelling contains the product of the gouty inflammation, lymphatic mixed with earthy substance. It gradually subsides, leaving here and there swellings on the foot. The attacks usually recur once a year, in spring or autumn, sometimes twice, and even oftener. As long as they are regular, they are not dangerous, as nature has the power of throwing off the disease in the extremities. The notion that there is no remedy against the podagra, and that a person who has been once attacked can never be cured, is erroneous. By shortening the period of inflammation, the secretion of the gouty matter may be promoted, and the pain more speedily assuaged. In the interval of the attacks, if attention is paid to the diet and manner of living, if the patient confines himself to simple food, and avoids the exciting causes of the disease, its violence may be gradually diminished, and the disease itself may be eradicated; while, by the neglect of these precautions, it continually becomes aggravated, and, as the system grows weaker, irregular and retrocedent, in which stage it is often fatal. (See *Gout*.)

Podalirius. (See *Æsculapius*.)

Podolia; a government of Russia, bounded north by Volhynia and Grodno, east by Ekaterinoslav and Cherson, south by Moldavia and the Dniester, and west by Bukowine; population, 1,462,000; square miles, 20,350. It is divided into 12 circles. The inhabitants are mostly Poles, but Russians and Jews are numerous.

Pœcile (ποικιλη); a portico in Athens, containing a picture gallery. (See *Polygnotus*.) Zeno taught his doctrines here, whence he was called the *stoic* (from στοα, a portico), and his school, the *stoic school*. (See *Zeno*, and *Stoics*.)

Poelenburg, Cornelius, a painter, born at Utrecht, in 1586, became a pupil of Bloemaert, and afterwards went to Rome. Here he studied Raphael's works; but he was deficient in design, and therefore confined himself principally to natural scenes on a small scale, in which he excelled. Rubens adorned his own cabinet with Poelenburg's productions. Charles I invited him to England, where he painted a portrait of the king and other works, but soon returned home, and died at Utrecht, in 1660. His works are rare, and esteemed for delicacy of touch and sweetness of coloring.

Poetics. (See *Poetry*.)

Poet Laureate. Among the Greeks, from whom the custom was also adopted by the Romans, it was the practice to crown the successful poets in the musical contests (see *Music*) with a wreath of laurel. The emperor Domitian crowned with his own hand poets and orators, at the Capitoline games, which had been instituted by him. In the thirteenth century, the custom was renewed by the Italians, and the crowning of Petrarca (q. v.) in the capitol was solemnized with great pomp. Every one must recollect the description of the coronation of Corinne. The German emperors conferred the title of poet laureate (*gekrönte dichter*, or, as he is called by the Italians, *poeta cesareo*) on their court poet. Conrad Celtes (q. v.) was the first who received that honor. The emperors also granted to the counts palatine the right of conferring that title. In England, the first mention of a king's poet, under the title of poet laureate, occurs, according to Warton, in the reign of Edward IV, from whom John Kay received it. *Poeta laureatus* was, however, also an academical title in England, conferred by the universities when the candidate received the degrees in grammar (which included rhetoric and versification). The last instance of a laureated degree at Oxford occurs in 1512. Skelton was laureated at both universities (in 1489 and 1493), and seems also to have been court laureate to Henry VIII. Ben Jonson was court poet to James I, and received a pension, but does not appear to have had the title of laureate formally granted him. Dryden was appointed laureate to Charles II, and afterwards to James II, by regular patent under privy seal. (See his prose works by Malone.) The first patent of this kind, issued in the reign of Charles I (1630), assigns as the yearly gratuity to the laureate £100, and a tierce of Canary wine out of the royal cellars. Nahum Tate, Rowe, Eusden, Cibber, Whitehead, T. Warton, Pye (who consented to a commutation of his wine for £27), and Southey (1813), have been the successors of Dryden.

Poetry, Poesy (from the Greek ποίησις, from ποιεω, I create, or produce, with reference probably to the creative power essential to a poet). The numberless unsuccessful attempts to define poetry warn us against circumscribing within the compass of a few words, a subject so vast, so variegated, and so interwoven with all the activities of the human spirit. The definitions usually given, even if true, amount only to illustrations or explanations. To make a full exposition of our views on this subject would far exceed our limits. One of the chief traits of the poetical is, that it peculiarly affects the imagination and the feelings. When we speak of actions or the creations of genius as poetical, the term implies further that they had their origin in conceptions in which the imagination and the feelings were chief agents. Hence the universality of poetry; hence the preponderance of the poetical in the language and conceptions of early nations. A common idea, the result of experience, or simple reasoning may be conceived (and accordingly expressed) by the poet in such a way as to strike our feelings with peculiar force, or ideas which, though elevated in themselves, are familiar to all, may receive new impressiveness from a new and striking way of expressing them. For instance, the precept to love our enemies; who does not feel that this elevated sentiment is rendered still more striking by the illustration of Menou, who adds to the precept, "like the sandal tree, which sheds perfume on the axe that fells it?" A great part of poetry, in fact, consists in a striking expression of common ideas, because it is impossible that a poet should always have new ideas. It is gratifying to find a new conception of a familiar idea presenting the subject in a light in which we had never viewed it. But if the language addressed to feeling and imagination chiefly, is often used to convey a plain idea poetically, or to give a familiar one a new charm, this language, on the other hand, is often the natural expression of an elevated imagination, which soars through regions to which our wishes, hopes and faith aspire, and speaks in metaphors because common language is inadequate to express its conceptions. Poetry has been divided into natural and artificial; the former signifying that poetry which consists in conceptions only, and not in the expression and arrangement of them by the rules of art. According to its subjects, and the relation which the poet holds to his productions, it is divided into the poetry of subjective (q. v.) feeling, or lyrical poetry (see *Lyrics*); narrative poetry (see *Epic*), and that which presents actions as happening, while the poet himself is kept entirely out of view; dramatic poetry (see *Drama*). The name *machinery* is given in epic and dramatic poetry to superhuman beings introduced by the poet to solve difficulties or perform exploits which surpass human power.—*Poetics* is the theory of poetry, and is partly a branch of practical æsthetics (q. v.), partly a branch of philology; the former, as far as the principles of the beautiful and of the fine arts are applied to poetry; the latter, as far as it is the theory of poetic style, or the technical part of poetry. It is one of the theories earliest developed,—nay, æsthetics grew out of it. Among the Greeks, Aristotle treated it in his περι Ποιητικης, of which we only possess a fragment (best edition by Gottfr. Hermann). Horace, in his *Ars Poetica*, or letter to the Pisos, shows himself his pupil. In modern times, it has been treated by Marc. Hier. Vida, Torquato Tasso and many other Italians, Nic. Boileau, Jul. Cæs. Scaliger, Ger. Voss, L. Racine, D'Alembert, Marmontel, Baumgarten (q. v.), the founder of æsthetics, Joh. Ad. Schlegel, Salzer, Engel, Jean Paul Fr. Richter (in his *Vorschule der Æsthetik*) and Clodius. Besides these, the theory of poetry in general has been treated by Lessing, Klopstock, W. von Humboldt, Herder, Schiller, Göthe, the Schlegels, Müller and others; in English, by Blair, Wordsworth, Campbell. We may divide the history of poetry into two periods; the one before the birth of Christ, the other since. The Hebrews are the first people from whom poetical productions have descended to our times. Only obscure traces remain of any earlier poetry of the Indians, Persians, Syrians and Arabians. The religious poetry of the Hebrews is of very ancient date, and possesses a solemn character, distinct from that of the other nations of antiquity. It begins with cosmogony, becomes at a later period of a warlike character, then assumes the form of sacred songs in the time of David, and attains under Solomon (from 1044 to 975) its greatest elevation, after which it assumes a prophetical character. (See *Hebrews*.) We next come to classic antiquity, and become acquainted with poetry in the plastic character, which it assumed in Asia Minor and Greece, under the influence of the prevailing paganism, which received such rich and various hues from the glowing imagination of the people. Greek poetry may again be divided into three periods: the first of these extends from the earliest times of Greece to the Persian war. Greek poetry begins in Thrace and Asia Minor, and the great national epic of Homer, or the Homerides, the rhapsodists, the cyclic and gnomic poets, indicate a wide diffusion of poetry at that time. Lyric poetry soon attained a peculiar eminence. The second period extends from the Persian war to the time of Alexander the Great. It is the flourishing period of the dramatic art, and of cultivated Greek poetry in general. The third period shows the decline of Greek poetry under the successors of Alexander, and the revival of the same in Alexandria. (See *Greek Literature*.) From the Greeks we turn to their imitators, the Romans, whose language was not employed in poetry till a late period, and who, until the second Punic war, or until the time in which they became closely connected with the Greeks, made only rude essays in poetry. The era of Augustus and Tiberius was the golden age of their poetry, and it thence declined continually, until the introduction of the Christian religion and the irruption of the barbarians. The fragments which have come down to us from the flourishing period of Indian poetry, some centuries before Christ, are of an original character and peculiar delicacy. The second chief period of the times since Christ (see *Modern*, and *Romantic*), first shows us the Latin language applied in the Christian worship to a mystic religious poetry; and later, in the ninth, tenth and succeeding centuries, employed by learned men in imitations of the old Roman poetry; contemporary with these we witness the rise of Arabian poetry. (q. v.) A peculiar poetry sprung up in the modern languages, among the French, at the time of the Provençals or Troubadours, in the eleventh century. In its devotion, valor and love, the spirit of chivalry is apparent. (See *Romantic*.) This romantic poetry of the Franks declined into mere artificial rhyming, after the end of the twelfth century. Under the dominion of Francis I, poetry somewhat revived; but the age of Louis XIV was the golden era of French poetry; although it often, but in its own manner, imitated the ancients, and modernized ancient materials. Rhetorical elegance and easy wit were its chief aim. (See *French Literature*.) The modern Italian poetry sprung from the Provençal. But a poetry of a natural character began in Sicily, after the thirteenth century, and flourished, peculiarly from the time of Dante and Petrarch to that of Ariosto and Tasso, in the thirteenth, fourteenth and fifteenth centuries, and thence declined into bombast and imitation. (See *Italian Poetry*.) The Spanish poetry appears originally the sister of the Provençal, but mingled with the Oriental character. The earliest Castilian poetry, properly so called, belongs to the thirteenth century; but it began to flourish under the administration of Charles I, and declined under Philip IV. Simultaneous with it, and in connexion with it, flourished the Portuguese. (See *Spanish Literature*, and *Portuguese Literature*.) The German poetry, which is closely connected with the northern, and has its own epic cycle, flourished at various times, and with much variety of character, but most vigorously when free from the influence of foreign models. (See *German Poetry*.) The origin of the English and Scottish poetry is lost, like that of the German, in the distant period of the bards; it was refined by the Norman French poetry. But the flourishing period of English poetry is placed in the times of queen Elizabeth, although Chaucer is esteemed the father of modern English poetry. The Scandinavian poetry, otherwise called northern, presents chivalry peculiarly colored by the northern character, since the thirteenth century, when the German *Heldenbuch* (book of heroes) was introduced into Norway, and foreign tales became blended with native ones. In the fourteenth century, the poetry of the mastersingers took the place of that which had been founded on the ancient sagas. (See *Danish and Swedish Language and Literature*.) These are the principal divisions in the history of poetry. For further information, see Warton's *History of English Poetry*, Sismondi's *Littérature du Midi de l'Europe*, Bouterwek's *History of modern Poetry and Eloquence* (in German).

Poggio Bracciolini, one of the early promoters of literature in Italy, was born at Terranuova, in the Florentine territory, in 1380. On completing his education, he went to Rome, where he obtained the office of writer of apostolical letters, and in 1414 attended John XXII to the council of Constance. In 1416 he undertook the task of searching the monasteries for ancient manuscripts; in that of St. Gall he discovered a complete copy of Quintilian, with a part of the Argonautics of Valerius Flaccus, and in other religious houses several of Cicero's orations, and obtained copies of the works of Silius Italicus, Vegetius, Ammianus Marcellinus, Columella, &c. In 1418, on the invitation of cardinal Beaufort, he visited England; but the barbarism of the country at that period soon led him to return, and he finally attached himself to Cosmo de' Medici. In 1440, he published his Dialogues on Nobility, one of the most finished of his works. In 1453, he was chosen chancellor to the Florentine republic. His History of Florence had not received its last polish at his death in 1459. Poggio was licentious, quarrelsome and intemperate in controversy; but his sentiments are in general liberal and manly, and he may be deemed the most elegant composer in Latin (the language of all his works) of that period. His writings are numerous, and upon various topics. Many are discussions on moral arguments, a few are philosophical, and several controversial: the remainder are chiefly translations, orations and letters, the chief fault of which is diffuseness. His *Historia Florentina*, which comprises the period from 1350 to 1455, is to be found in the collections of Grævius and Muratori. The whole of the works of Poggio were published together at Basil, 1538.—See his life by Shepherd (Liverpool, 1802).

Poictiers. (See *Poitiers.*)

Point, in music, as conjoined with others, has various significations. The different uses to which points were formerly applied, render the perusal of old compositions extremely difficult and perplexing. In those works we meet with the *point of perfection, point of augmentation, point of division*, and *point of alteration.* The *point of perfection* was added to those notes which were denoted by the modal signs to be perfect, or equal to three notes of the same value, but which were rendered imperfect by position. The *point of augmentation* is that in modern use, which the old masters used only in *common* or *imperfect* time. The *point of division*, or *imperfection*, was placed between two shorter notes that followed, and were succeeded by two longer, in perfect modes, to render both the long notes imperfect. The *point of alteration*, or of *duplication*, was placed before two shorter notes preceding a longer, in order to double the length of the second short note. In modern music, the *point*, taken as an increased power of the note, is always equal to the half of the note to which it appertains.

Point, in geometry, as defined by Euclid, is a quantity which has no parts, or which is indivisible. Points are the ends or extremities of lines. If a point is supposed to be moved any way, it will, by its motion, describe a line.

Point is also an iron or steel instrument, used with some variety in several arts. Engravers, etchers, cutters in wood, &c., use points to trace their designs on the copper, wood, stone, &c.

Point, in manufactures, is a general term used for all kinds of laces wrought with the needle: such are the *point de Vénise, point de France, point de Gènes*, &c., which are distinguished by the particular economy and arrangement of their points.

Point, among sailors; a low arm of the shore which projects into the sea, or into a river, beyond the contiguous part of the beach. *To point a gun;* to direct it towards any particular object or point.

Point blanc, in gunnery, denotes the shot of a gun levelled horizontally.

Point Comfort, Old; a cape on the coast of Virginia, at the mouth of James river, on the north side, about ten miles south-east of Hampton, twenty north of Norfolk; lon. 76° 20′ W.; lat. 37° 3′ N. Extensive fortifications have been erected here; and at the Rip Raps, one mile distant, a mount has been formed by placing stones in the water, thus forming an island of four acres, with fortifications commanding the entrance of the river.

Pointer. The dog called *pointer* is found in Spain, Portugal and France, with but slight difference of form. It is not a native of England, but has long since been naturalized there. "Those pointers," says Johnson in his Shooter's Companion, "which I have seen direct from Spain, are heavy and clumsily formed; those from Portugal are somewhat lighter; while the French breed is remarkable for a wide furrow which runs between the nostrils, and gives to the animal's countenance a very grotesque appearance. They are all thick and heavy, with large, chubby heads, long, pendent ears, and short, smooth hair; they are often ill tempered and snappish, and, in fact, are good for little in this country till they have been crossed with the more generous blood of these islands. Yet the conjunction of the setter and pointer is by no means advisable. Excellent pointers have been produced by the fox-hound and the Spaniard. In crossing with the Spanish pointer, the deep-flewed hound is to be preferred, and from judicious crossing excellent pointers are to be met with in most parts of England. They differ from the setter, as, when they have approached sufficiently near the game, they stand erect, whereas the true-bred setter will either sit upon his haunches, or lie close to the ground, generally the latter. Pointers often suffer much from sore feet. I have generally found white-footed dogs much more tender in this respect than those whose feet are of a dark color. Pointers are sometimes used with bells round their necks in cover shooting. When the dog sets, the ringing ceases, and the shooter proceeds to the spot. Pointers are very susceptible of education, and not so apt to forget their lessons as the setter, and their speed, strength and persevering spirit enable them to continue the chase for a length of time almost incredible." Pointers are used in finding feathered game of various sorts, partridges, pheasants, &c.

Point of Sight. (See *Perspective.*)

Poison. A poison is any substance of which a small quantity taken into the stomach, mixed with the blood by wounds, or through the lungs, or absorbed through the skin, can produce changes in the bodies of brutes or men, deleterious to the health, and even destructive to life, by means not mechanical. Many poisons operate chemically, corroding the organized fibre, destroying the form and connexion of the parts, exciting powerfully, and causing inflammation and mortification. To this class belong most of the poisons of the mineral kingdom; as, 1. many metallic oxides and salts, as arsenic, one of the most destructive poisons, of which a few grains produce fatal effects. Many preparations of copper are also poisonous, as verdigris, and many paints; also very acid or salt articles of food or drink cooked in copper vessels. Many preparations of quicksilver, as corrosive sublimate, red precipitate, &c., some common preparations of antimony, should also be named here. 2. Strong mineral and vegetable acids, when introduced into the body in an undiluted state, as concentrated sulphuric acid or oil of vitriol, nitric acid or aqua fortis, muriatic acid, &c. 3. Some plants contain an extremely powerful and corrosive substance, as the wolf's milk (*euphorbium esula*), the *daphne mezereum*, &c. 4. Of the animal kingdom, the *cantharides* (q. v.), or *Spanish flies*, as they are called. The operation of all these poisons is very expeditious; when they enter the stomach, violent sickness is felt, incessant straining and vomiting take place, with most excruciating pains in the stomach and bowels, as if knives were driven through them; then follows inflammation, if relief be not speedily obtained, and this is succeeded by mortification. Other poisons operate more by a powerful action upon the nerves, and a rapid destruction of their energy. These are the sedative or stupifying poisons, and belong for the most part to the vegetable kingdom. Their effects are sickness, violent head-ache, dizziness, darkness or spots before the eyes, powerful and involuntary motions of the limbs and of the whole body, distortion of the eyes, anguish, loss of consciousness, and at last apoplexy and death. To this class belong opium, hemlock, henbane, belladonna, &c. There is also a similar poison contained in the bitter almond and in the kernel of peaches, which is rapidly destructive of life (the Prussic acid), which shows its effects either when those substances are taken into the stomach in great quantities, or when their concentrated oil, obtained by distillation, is swallowed. The same substance is found in the cherry laurel; and, among the productions of the animal world, in the Prussian blue. Among plants, there are many which unite the properties of both kinds, which stimulate by means of a sharp, acid substance, and are also subsequently sedative, from the operation of a narcotic principle. To these belong the purple fox-glove (*digitalis purpurea*), the monks-hood (*aconitum napellus*), &c. Other poisons operate by suddenly and entirely destroying many of the functions necessary to life. To this class belong all the kinds of gas and air which are irrespirable, suffocating vapors, as carbonic acid gas, or fixed air in cellars, where beer is working, wells, &c., fumes of sulphur and charcoal, air corrupted by the respiration and perspiration of many people in closed rooms, concentrated effluvia of flowers in similar places, &c. Many preparations of lead, as sugar of lead, white lead, wine sweetened by the addition of lead, are to be counted in this class, since they destroy the activity of the absorbent vessels in the abdominal canal, contract the bowels, produce colicky pains, and finally prevent the absorption of the chyle by which the body is to be nourished. Pope Clement XIV, according to the common belief in Italy, was destroyed by a terrible poison, called *l'acquetta*. The Indians of South America, between the Amazon and the Orinoco, apply a very powerful poison, called the *Wourali* poison, to the heads of the arrows with which they shoot their game. It destroys life very quickly, without corrupting or imparting any bad quality to the flesh. (See Waterton's *Wanderings*, description of his first journey.) The so called *morbid poisons*, or *contagions*, do not belong to this class, and are very improperly called *poisons*, as for instance, the poison of hydrophobia. (See *Contagion*.) Every substance is called an *antidote*, which counteracts the effect of a poison, more especially the remedies which belong to each kind of poison respectively. Antidotes are as various as poisons. They sometimes protect the body against the operation of the poison, sometimes change this last in such a manner that it loses its injurious properties, and sometimes remove or remedy its violent results. Thus, in cases of poisoning by acrid and corrosive substances, we use the fatty, mucilaginous substances, as oil, milk, &c., which sheath and protect the coats of the stomach and bowels against the operation of the poison. Against the metallic poisons, soap and liver of sulphur are most efficacious, as they prevent the operation of the poison by combining the alkali and sulphur with the corrosive particles of the metal. Oil, alkalies and soap are the best remedies for the powerful acids. For cantharides, mucilage, oil, and camphor, are employed. We oppose to the narcotic poisons the weaker vegetable acids, vinegar, the acid virus, coffee. Prussic acid is neutralized by alkalies and iron. To arouse those poisoned by opium, we use wine, coffee, brandy, camphor, &c. It was formerly believed that all poisonous matters could be thrown out of the body with the perspiration; and hence we find among the old antidotes a large number of sweating medicines. In this idea originated the *alexipharmacon* of the ancients, the famous *mithridate*, the *theriaca*, &c., which produced, however, no other effect than increased activity of the nervous and circulatory system, from which followed sweats, and perhaps as much harm as good to the sufferer.

Poitiers (anciently *Pictavi*); a town of France, on the Clain, formerly capital of the province of Poitou, at present of the department of the Vienne; population, 21,562; lat. 46° 35′ N.; lon. 21′ E.; 68 leagues south-west of Paris. It is a very old place, surrounded by a wall, with narrow, crooked streets; its cathedral is only remarkable for its age; it contains several literary institutions, and some manufactures. Poitiers is celebrated for the battle fought in its vicinity (at Maupertuis), between the French, under their king John, and the English, under Edward the Black Prince, Sept. 19, 1356. (See *Edward III*, and *Edward, Prince of Wales.*) The English army did not exceed 12,000 men; the French was not less than 60,000; but the English were superior in discipline and subordination. The French van was at once routed, and their centre was broken almost at the first onset. John was made prisoner after an obstinate resistance, and, though treated with great courtesy by the conqueror, was detained prisoner in London for four years, and obliged to purchase his freedom by the cession of several provinces and the payment of 3,000,000 crowns of gold. (See Froissart, liv. i, ch. 158—174, and ch. 212.)

Poitiers, Diana of. (See *Diana of Poitiers.*)

Poitou, or **Poictou**; before the revolution, one of the provinces of France, in the western part of the kingdom, between Brittany and Anjou on the north, Berry on the east, the Atlantic on the west, and Angoumois and Saintonge on the south. The departments of the Vienne, the Deux-Sèvres and the Vendée have been formed out of this province. (See *Department.*) Henry II (q. v.) of England acquired possession of Poitou by his marriage with Eleanor, heiress of the last duke of Aquitaine. Philip Augustus conquered it. It was ceded to the English by the peace of Bretigny (1360), but was recovered by Charles V.

Pola (*Pietas Julia*); a town of Istria, belonging to the circle of Trieste, in the Austrian kingdom of Illyria. (q. v.) It is a bishop's see, and, although reduced to a population of 8—900, contains traces of its flourishing condition under the Romans. Within its ancient walls are seen the ruins of an amphitheatre, which is estimated to have been large enough to accommodate 18,000 persons. Spon first directed the attention of the public to Pola, and Cassa's excellent sketches of its ruins have increased the interest. (See his *Voyage pittoresque de l'Istrie et de la Dalmatie.*) The amphitheatre is equal to any thing of the sort that has come down to us. It differs from the others with which we are acquainted, in having four buttresses at the four corners of a quadrangle. According to Cassa, it is not built of the Istrian stone, which is so much esteemed by architects. It consists of three stories, each of which contains seventy-two arcades. There are no stairs remaining, but the exterior walls are almost entire. The two temples, one of which is in good preservation, belong to a period of pure taste. Pola was most flourishing in the reign of Severus, when it assumed the proud title of *Respublica Polensis*. A triumphal arch, erected by Salvia Posthuma in honor of her husband, Sergius Lepidus, is in a pretty good condition, and, under the name of *porta aurea*, is used as a gate of the town.

Polacca, Alla. (See *Polonaise.*)

Poland (in Polish, *Polska;* in German, *Polen;* in French, *Pologne*); an extensive country in the northern part of Europe, extending from the foot of the Carpathian mountains, and the fertile plains of the Ukraine (lat. 47°), to the shores of the Baltic (56° lat.), and from the 15th to the 32d degree of east longitude. It derives its name, which signifies, in the Sclavonic dialect, a *plain*, from the level character of its surface. Although it has ceased to constitute an independent and single state, still the country is distinctly separated from those which surround it by national character, language and manners; it is still the land of the Poles, although its detached fragments have become Austrian, Prussian or Russian provinces, containing about 20,000,000 Poles. (See *Galicia*, *Cracow*, *Posen*, *Lithuania*, &c., and the following article.) After the annexation of Lithuania in the end of the 14th century, the whole Polish territory comprised an extent of 284,000 square miles, and was divided into Great and Little Poland on the west, Mazovia and Podlachia in the centre, with Volhynia, Podolia and the Ukraine towards the east, and Lithuania in the north-east. The inferior divisions were 31 palatinates and *starostys*. The face of the country is almost every where low and level, and in many places marshy. All the great rivers, except the Niemen, run in shallow channels, and overflow their banks. After a rainy season, whole provinces appear inundated, and the waters of distant streams flow into each other. The Carpathian mountains form the south-western boundary of the country, and another low ridge penetrates it from Silesia. In the rest of the country, the ground is highest along a curved line extending throughout the middle of the (old) kingdom from Hungary to Lithuania, and indicated not by conspicuous elevations, but by the course of the waters; the rivers on the west side flowing into the Baltic, and those on the east into the Euxine. Of the former, the principal are the Vistula, the Bug, the Niemen, the Pregel, the Dwina; of the latter, the Przypiec, the Dnieper and the Dniester. The east winds from the frozen plains of Russia, and the south winds from the Carpathians, render the winters as severe in Poland as in Sweden, although there is a difference of 10° of latitude. Vegetation is a month later than in the same latitudes on the western shore of the continent. The humidity and cold of the climate, joined to the exhalations from the marshes and vast forests, render the Polish countries unhealthy. (See *Plica Polonica.*) The most pleasant and fertile part is the south-east. (See *Ukraine.*) The country abounds in iron, but of indifferent quality; lead, gold and silver are also found. There are very rich salt mines at Bochnia and Wieliczka, both situated in Galicia. The state of cultivation is extremely wretched; yet the climate is so regular, and the soil so productive, that the average annual export of corn has been estimated at 4,000,000 English quarters. The export of cattle is also of considerable extent. Poland is poor in fruits; flax and hemp are raised, and in some of the provinces there is a great abundance of wood. The peasantry are in a wretched condition, dirty, improvident, indolent, addicted to intoxication, and of course poor. The general aspect of the country is rude and backward; the roads are bad, and the inns miserable. The Russian kingdom of Poland, which, before the cessions at Andrussow in 1667, contained 16,000,000 inhabitants, now contains, on a surface of 48,600 square miles, in 482 towns (viz. 211 immediate and 271 mediate towns), and 22,694 villages, 3,850,000 inhabitants (in 1818, the number was 2,734,000), among which are 212,944 Jews. The capital, Warsaw (q. v.), contained, previous to the late insurrection, 135,000 inhabitants. Poland was divided, in 1816, into eight waywodeships—Masovia (capital, Warsaw,) Kalisch, Cracow (chief town, Miechow), Sandomir (capital Radom), Lublin, Podlachia (capital Siedlce), Plock, and Augustow (capital Suwalki).

Constitution. The state received a constitution from the emperor Alexander, signed by him at Warsaw, Nov. 27, 1815. According to this, the executive power was vested in the king, but the exercise of it intrusted to a council of state, the governor and five ministers. The diet, which the king was to convene every other year, and whose session lasted 30 days, consisted, 1. of the chamber of the senate (30 members, viz. 10 bishops, 10 waywodes and 10 castellans); 2. of the chamber of nuncios, in which 77 nuncios, appointed by the 77 assemblies of the nobles of the 77 districts, and 51 deputies (from 8 assemblies for the city of Warsaw, and 43 for the rest of the country), as well as the members of the council of state, had a seat and vote. But in this chamber, the five ministers, and the members of the three committees, appointed by the chamber for financial, civil and criminal laws (the first of five members), could alone speak; the other nuncios voted by ballot. The diet examined the projects of laws, framed in the council of state. By this constitution, all Christian denominations enjoyed equal religious and political privileges; the freedom of the press was acknowledged, and all public officers, the members of the council of state, the ministers, &c., were made responsible. The archbishop of Warsaw was primate of the kingdom. The Polish diet was convened, for the first time for 23 years, in 1818, and again in 1820, 1825 and 1830.

History. This country, for a thousand years, has been remarkable for its miserable condition. Prior to 1772, this country, the most extensive plain in Europe, contained, with Lithuania, 284,000 square miles, supporting a population of at most 11,500,000 (according to Busching, 8,000,000 or 9,000,000) inhabitants, who, under 100,000 petty masters, derived as little benefit from the freedom of the republic as from the fertility of the soil. Corn and wheat, flax, wood, honey and wax, excellent horses, large herds of fine cattle, and an inexhaustible supply of salt, constituted the natural and commercial wealth of the country, which was easily conveyed to the Baltic and Black seas, by rivers abounding in fish; but, excepting in Warsaw, Bromberg, Posen, and some towns of the Silesian frontier, industry was torpid; the whip of the noble was the only stimulus of agriculture, and the Jew drowned in brandy all activity of mind; for the sentiment of the Polish serf is, "Only what I drink is mine." The least of the evils of the country was legions of wolves and other rapacious animals. In the great convulsions produced by the incursions of the Goths and Huns, and still more in its 200 years' struggles with the Germans, and in its internal troubles, this people (a branch of the Sarmatians of the Borysthenes) acquired a wonderful elasticity of character, compounded of pliancy and obstinacy, of submission and defiance, of servility and patriotic pride. The first Sclavonic tribes, who, in the sixth century, expelled the old Finnish tribes, marched up the Dnieper, and followed down the course of the Vistula. Here they settled on one side, under the name of Lithuanians, and, on the other, around the shores of the Baltic, under those of Prussians and Lettians; they were followed, in the seventh century, by the Leches, another Sclavonic tribe. These last, more civilized than the other wild hordes, received Christianity about 960, and, at the same time, the art of writing, and, towards the end of the tenth century, were called Poles (i. e. Sclavonians of the plain). It was the fate of this new people to be continually at variance with its neighbors. In 840, those between the Vistula and Warta had been united under Piast, a prince of their own choice; but they were afterwards again divided into smaller principalities among his male heirs, so that there remained no other bond of union than affinity of origin, a common reigning family (the Piasts), and a common name. This unity, rather the result of opinion and feeling than of legal arrangements, had, however, a powerful influence on the imagination of the Poles, and inspired them with the most heroic patriotism. But, like all men destitute of legal order and freedom, and governed by their feelings, they abandoned themselves to every political excess, with equal thoughtlessness and passion. So far the body of the people may be called fickle and without character; yet there has not been any want of distinguished men among them, who would have done honor to any republic. With youthful enthusiasm they combined manly energy and republican elevation. In the history of Poland, the names of Tarnoffski, Zamoyski, Zolkieffski, besides those of heroes and statesmen of later days, are immortal. Others, however, driven abroad by internal dissensions, betrayed their country to the enemy through blind party rage. Thus Poland, as a state, struggled with the fundamental evils of its constitution, till it fell under them. In this republic there existed no unity, although it received the name of one kingdom in 1025, under Boleslaus Chrobry. The tree of liberty stood without roots, till overthrown by the tempest. The elective franchise was, unquestionably, the cause of the turbulence of party. Legal order and civil liberty could not thrive because of the prevailing inequality of condition. The nobleman was the only citizen. To this rude, thousand-headed sovereign, its policy was by no means clear; still less did the Poles understand how to unite individual liberty with public power. The nation, therefore, lost one safeguard of its independence after another; first Silesia and the Oder, then the Baltic, the Dnieper, and finally the Carpathians. But a state which has no fixed boundaries, which is cut off from the sea, and which has not the strength of internal unity, will always be the prey of the ambitious policy of its neighbors. The misfortunes of Poland began when the Piasts divided the country among their sons. Boleslaus III, indeed, in 1138, conferred on the eldest, as the possessor of Cracow, a kind of superiority over the other princes; but this only increased the confusion. The arrogance of the hierarchy, and the inveterate hatred nourished between the Germans and Poles by 200 years of war, prevented even Christianity, which was introduced into Poland at the end of the tenth century, from having a beneficial influence on the state of the country. When, at a subsequent period, Conrad of Masovia called in the Teutonic knights against the Prussians, they conquered the Baltic seaboard, from the Oder to the gulf of Finland, between 1230—1404, and Poland lost its northern line of defence and maritime commerce. Ladislaus Lokietek, who was crowned in 1305 as king of Cracow, had indeed united Great Poland, on the Warta, with Little Poland, on the Upper Vistula, into one whole; but it was too late. The Germans were too powerful for the Polish state. His son Casimir, who, on account of his wisdom as a legislator, and his exertions in civilizing the interior, was surnamed the Great, was compelled formally to cede the Oder and Lower Vistula, in the peace of Kalisch, in 1343. This wise prince was more successful in establishing social order. He fortified the towns, and freed them from the oppressions of the nobility, but, on account of his love of a Jewess, conferred favors on her nation, which subsequently monopolized all trade, and impeded the national prosperity. With Casimir (in 1370), the male line of the Piasts became extinct. The nobility now began to barter their votes with the candidates for the throne, in exchange for personal privileges, which could be granted them only at the expense of the whole. The union of Poland with Hungary, under Louis (1370—82), was not, therefore, sufficient to confirm the monarchy. More natural, and therefore more permanent, was the union with Lithuania, in 1386; the Lithuanian grand-duke Jagellon having obtained the Polish crown by marriage and election. But difference of language and manners kept the Lithuanians separate from the Poles. Christianity, which the former now first embraced, was not a political bond, that could unite the two nations into one people; they were, however, now more powerful against their common enemy, the Teutonic knights. Poland seemed to recover its natural boundaries when, by the treaty of Thorn, in 1466, the knights ceded Culm and the Vistula, as far as Elbingen, to Poland, and acknowledged the suzerainty of the republic over the possessions of the order. Livonia, also, was annexed to Lithuania in 1558, and in 1561 Courland became a Polish fief; thus Poland, especially after 1569, when the Lithuanian nobility, with that of Great and Little Poland, constituted one diet, became the most powerful state in the north. But by the traffic which they carried on in the succession to the throne, the hereditary right to which they often contested with the Jagellons, the nobles acquired the entire representation of the nation, to the exclusion of the rest of the people. They appeared at the diets by nuncios, without whose consent (from 1505) no change could be made in the constitution of the state. From the native nobility alone the king could name the archbishops, bishops, waywodes, castellans and ministers, who formed the first estate of the realm, or the senate in the diet. But the state still wanted a firm hand to keep the whole together. Smolensk, the bulwark of Poland on the Dnieper, was conquered, in 1514, by the Russians, and religious animosity raged in the country; but the dissidents (q. v.), or the Protestants, with the non-united Greeks (see *Greek Church*), obtained, at the diet of Wilna, in 1563, equal rights with the Catholics. The extinction of the Jagellon dynasty, however, in 1572, prevented this religious peace from being a blessing to the Poles. From this time, Poland continued an elective monarchy, till the adoption of the constitution of May 3, 1791. Henry of Anjou, the king-elect, swore to the first *pacta conventa*, as a sort of charter of privileges of the nobility. Thenceforward party hatred divided the leaders of the nobility, and family feuds called foreign arms into the country. Thus the Zamoiski party, which, by the election of the Swedish prince Sigismund, attempted to unite the two first crowns of the north, gave rise not only to domestic dissension, which was in a manner legitimated by the right of confederation and insurrection (belonging to the nobles since 1607), but also to bloody wars with Sweden, which finally gained a superiority over Poland, by the peace of Oliva (q. v.), in 1660. Sweden obtained Livonia, and the great elector of Brandenburg (in 1657) the sovereignty of Prussia. (See *Frederic William*.) At home, all political connexion was dissolved in anarchy, when, in the reign of John Casimir (1648—69), the *liberum veto* was established by law, by which the vote of a single deputy could negative the resolution of all the rest. From the confederation there was but a step to political treason. Faction favored the revolt of the Cossacks, who, in 1654, put themselves under Russian protection, after which Smolensk, Kiev, the Dnieper, and the part of the Ukraine beyond it, were ceded to Russia, in 1667, by the 13 years' truce of Andrussow. King John Casimir at that time foretold with truth, in his speech to the diet (July 4, 1661), how, by whom, and why, Poland would one day be partitioned. The brave Sobieski ratified those cessions in the perpetual peace of 1686; on the other hand, Russia engaged to assist him in conquering Moldavia and Walachia. After his death, in 1696, the throne was sold to the highest bidder. (See *Polignac*.) When the elector of Saxony (see *Augustus II*) maintained a resistance to the French party, and attached himself to

Peter of Russia, the republic, unable to defend itself, and considering the presence of the Saxon army dangerous to its freedom, was involved, by the unsteadiness and ambition of cardinal Radziecowski, in the northern war, which made Russia the first power in the north. (See *Northern War.*) The fate of Poland was now decided. Swedish arms accomplished, in 1704, what the Russians achieved at a later period (1733—95). They disposed of the Polish throne. Corruption and luxury now made equal progress among the Polish nobility, and paralyzed and annihilated the strength of the nation. To fill up the measure of confusion, encroachments were made, in 1717, on the constitutional rights of the dissidents, which had been established for 150 years. The Jesuits blew up the flames, and their inquisitorial tribunal, established at Thoren in 1724, became the signal for mortal hatred. Finally, at the diets of 1733 and 1736, the dissidents were excluded from the office of deputy, from access to the courts of justice, and, in general, from all public offices; they were to be treated merely as the privileged Jews. In its moral tone, too, which aimed at uniting French wit and frivolousness with excess and rudeness, Poland went back many steps towards the times of violence. Thus every passion was thrown into a fatal ferment, when Catharine II placed her favorite, the count Poniatowski (q. v.), on the Polish throne. Too weak to check the rebellious pride of the nobility, he wavered between Russian protection and the dignity of an independent republic, till he finally lost the respect of all. The fanaticism with which Soltyk, bishop of Cracow, and Massalski, bishop of Wilna, opposed the restoration of religious freedom, was the main cause of the civil war, which plunged Poland into the wildest disorder, and accelerated the final ruin of the state. Russia embraced the cause of the dissidents, a general confederation was formed, but the diet was altogether under Russian influence. On the other hand, the confederacy of Bar was supported by France, and the war broke out with Russia. Foreign troops laid waste the country, and the lawless conduct of some of the Polish party chiefs excited, among the neighboring powers, such a contempt of the natural rights of the Poles, that, to use the expression of Catharine, they deemed Poland a country in which it was only necessary to stoop to pick up something. Such being the internal condition of the country, it seemed to the Austrian court a favorable opportunity to take possession of the towns of Zips, which had been mortgaged to Poland by Hungary, in 1402; and the dexterity of Kaunitz, the Austrian minister of state, finally induced the Petersburg, and this the Prussian cabinet, to meditate the partition of Poland. Von Dohm has shown, in his Memoirs (vol. i, p. 433 et seq.), in what manner the plan originated. This project has been, by some, ascribed to Prussia. Whoever must bear the guilt of starting this infamous scheme, the ignominy of all the three accomplices is sufficiently great. Sept. 2, 1772, the Russian minister made known the resolution of the three powers, and Sept. 18, 1773, the republic of Poland confirmed the treaty of partition, by which Poland lost 84,000 square miles. Austria obtained the county of Zips, the half of the Palatinate (waywodeship of Cracow), a part of the palatinate of Sandomir, the palatinate of Red Russia, the greater part of Belz, Pokutia, and a part of Podolia, countries which had formerly constituted the kingdoms of Galicia and Lodomeria, belonging to Hungary (27,000 square miles). Prussia received all Polish Prussia, with the exception of Dantzic and Thorn, and, in Great Poland, the district of Netz, which had formerly belonged to Pomerania, under the name of Pomerelia (13,375 square miles). Russia received Polish Livonia, half the palatinate of Polotzk, the palatinates of Vitepsk, Mscislav, and a part of Minsk (42,000 square miles). Russia now decided the constitution of the unhappy republic. The Poles at last became aware of their true policy, and of their past folly. To secure their independence, encouraged by the promise of protection from Frederic William of Prussia, they undertook the formation of a new constitution. The elective monarchy was to be abolished, and the third estate to be received into the national representation. This was the basis of the constitution of May 3, 1791, to which Prussia gave its approbation. But Russia rejected it by the declaration of May 18, 1791, and espoused the cause of its opponents, who had concluded at Targowicz a confederation against the constitution which had been adopted by the diet. Prussia abandoned the cause of the republic, in the king's answer to the Poles, given June 8, 1792, through Lucchesini: the Polish republic, he said, had done wrong to adopt, without his knowledge and coöperation, a constitution which he had never intended to support. Prussia consented to a second partition, in 1793, by which Russia received 96,500 square miles, with 3,000,000 inhabitants (the remainder of the palatinates of Polotzk and Minsk, half the palatinates of Novgorod and Brzesk, the crown domains of Polish Ukraine, Podolia, and the eastern half of Volhynia); Prussia 22,500 square miles, with 1,136,000 inhabitants (the palatinates of Posen, Gnesen, Kalisch, Sieradc, Lenczic, and half Rawa, besides Dantzic and Thorn, half the palatinate Brzesc and of the district of Dobrzyn, together with the fortress of Czenstochow). Russian bayonets compelled the indignant members of the diet to acquiesce in this dismemberment of their country. The remnant of Poland was now under Russian guardianship. The heroic Kosciusko (q. v.), in this situation of affairs, became the head of the confederates of Cracow, in March, 1794, and, in the holy contest for their country, Warsaw and Wilna were liberated. The battle of Raclawice, April 4, 1794, and the relief of Warsaw, which was besieged by the Prussian army, Sept. 5 and 6, 1794, are the most glorious days in the history of the Polish nation. But it was too late: without fortresses, discipline, allies, or even arms; surrounded by Russians, Prussians and Austrians—the convulsive efforts of national despair must have been unavailing, after the battle of Macziewice, October 10, and after the fall of Praga (q. v.), November 4, even if the Poles had acted with more unity, and had had more heroes like Kosciusko. In October, 1795, the whole country was divided between Russia (43,000 square miles, with 1,200,000 inhabitants), Prussia (21,000 square miles, with 1,000,000 inhabitants), and Austria (17,600 square miles, with 1,000,000 inhabitants). The last king lived at Petersburg, with a pension, and died there in 1798. To the Poles nothing remained but wounded feelings of national pride, a bitter hate against Russians and Germans, and fruitless appeals to French aid and public sympathy. Russia had robbed Poland of upwards of 180,000 square miles, and 4,600,000 inhabitants; Austria of about 45,000 square miles, with 5,000,000 inhabitants; Prussia of 57,000 square miles, with 2,550,000 inhabitants. The dismembered country, which now first received internal order from foreign hands, continued in this condition till November, 1806, when Napoleon's victories led the emigrant Poles, under Dombrowski, to Posen and Warsaw. By the terms of the peace of Tilsit (July 9, 1807), the greater part of the Prussian Polish provinces was formed into the duchy of Warsaw, which received a German ruler in the king of Saxony, and, at the same time with the French code, a constitution similar to the French, by which bondage was abolished. Dantzic was to have been a republic, under the protection of Prussia and Saxony, but remained a French place of arms. The dotations (q. v.) bestowed on the French officers, and still more the continental system (q. v.), which destroyed all trade, exhausted the public revenues, so that Poland, amid all its natural wealth, experienced the fate of Tantalus. The necessity of furnishing troops for the French service, was also a check on the prosperity of the new state, and annihilated all that Prussia had effected at great sacrifices. Yet the woollen and cotton manufactures, that had grown up in Posen and Bromberg, sustained themselves. The government of the duchy did every thing practicable under such unfavorable circumstances. The war between France and Austria, in 1809, augmented, indeed, the sufferings of the country, but developed, to an extraordinary degree, the military energies of the people. Under the command of Poniatowski and French officers, the Polish troops rivalled the best troops of France in valor. They advanced to Cracow, and the peace of Vienna (Oct. 14, 1809) annexed Western Galicia to the duchy of Warsaw, which had hitherto contained 39,000 square miles, with 2,200,000 inhabitants; so that it now comprised 60,000 square miles, with 3,780,000 inhabitants, and furnished a well-equipped army of 60,000 men, which fought in Spain with great bravery. Under these circumstances, the old national pride revived; their former boundaries, a native king, and the restoration of the name of Poland, were the unanimous wish of the nation. On this wish, which he artfully encouraged, Napoleon founded his plan of attack upon Russia, in 1812, which he styled the second Polish war. He contrived that a general Polish confederation, in Warsaw (June 28, 1812), should solemnly proclaim the restoration of Poland; but the ardor was not universal. The exertions of the duchy, which raised upwards of 80,000 men, were, for the most part, rendered useless by Napoleon's method of waging war. Tormassoff kept the Lithuanians in check, and, instead of the "16,000,000 Poles," whom Napoleon boasted that he should find on horseback at his command, only a few battalions of volunteers assembled. A brave resistance was, nevertheless, offered by the fortresses Zamosc, Modlin and Thorn, which, however, were partially garrisoned by French and German troops. The sufferings of Poland, in this war of restoration, and the manner in which Napoleon counterworked his own plans, may be learned from De Pradt (q. v.), archbishop of Malines, who was his ambassador in Warsaw (*Histoire de l'Ambassade dans le Grand Duché de Varsovie, en* 1812; Paris, 1815, 8th edit.). The Polish bands followed the defeated emperor to France; a part even to Elba. Meanwhile Russia assumed the administration of the whole duchy. Dantzic, with its territory, reverted to Prussia, and the congress at Vienna (in May, 1815) decided the fate of the country. 1. The city of Cracow, with its territory (466 square miles, 96,000 inhabitants, and a revenue of 250,000 dollars [thalers]), was to be governed by its own laws, as a free and independent republic; 2. the country on the right bank of the Vistula, with the circle of Tarnopola, which had been ceded to Russia by the peace of Vienna, was restored to Austria; 3. the circles of Culm and Michelau, the city of Thorn and its territory, the department of Posen, with the exception of the circles of Powitz and Peysern, and part of the department of Kalisch, as far as the Prozna, excluding the city and circle of that name (these limits were more exactly defined by the boundary-treaty between Russia and Prussia of Nov. 11, 1817), were ceded to the king of Prussia, who united Dantzic, Thorn, Culm and Michelau with West Prussia, and from the remainder (11,400 square miles, with 847,000 inhabitants) formed the grand-duchy of Posen, and appointed prince Radziwill governor; 4. all the rest was united with the Russian empire, under the name of the kingdom of Poland, but with a separate administration, and such a territorial extent as the Russian emperor should see fit. The emperor Alexander, therefore, assumed the title of czar and king of Poland, and received homage in Warsaw. Poland, though thus divided, preserved its name and language, as the treaties of Vienna secured to all Poles, who were subjects of either of the three powers, such an organization as tended to maintain their national existence. A Polish charter was accordingly promulgated (Nov. 27, 1815), consisting of one hundred and sixty-five articles, which, if faithfully executed, would have promoted the welfare of Poland. The government of the country was to be vested in a native Pole, as lieutenant of the kingdom, unless one of the imperial princes should be appointed viceroy. This was rendered nugatory by the presence of the tyrannical Constantine, as commander-in-chief. Equality of religious sects, personal security, liberty of the press, the entire possession of all employments, civil and military, in the country, by Poles, were among the promises of the charter; and these rights were to be secured by a national diet, composed of two chambers. But these promises were kept only to the ear; restrictions on the press, arbitrary imprisonment, arbitrary and cruel punishments, insults added to injuries, a solemn mockery of a diet, which was not allowed to exercise any real authority; the violation of every article of the charter by a Russian barbarian; peculation and extortion practised by the inferior officers; —these were some of the features of the Russian government of Poland. The first diet was assembled in 1818, and the liberty of the press was abolished by an act of 1819. Another diet was held in 1820, but these meetings were rendered mere ceremonies; they had no freedom of debate, for those members who dared to express opinions unpalatable to the government were banished to their estates, and made to pay the troops that guarded them; it could not refuse supplies; and, in 1825, an ordinance was issued by the government, abolishing publicity of debate. The resources were squandered to maintain a Russian and Polish army, and Russian governors practised all sorts of extortion; state prisoners were sent into Russia, and imprisoned without trial; respectable citizens were flogged or made to work in the highways without any charge being specified against them. On the death of Alexander (December, 1825) and the accession of Nicholas, a conspiracy broke out in Russia, and, on pretence that it extended to Warsaw, several hundred persons were arrested in Poland, and a commission constituted, contrary to the provisions of the charter, to inquire into the affair. The only discovery of this inquisitorial tribunal was, that secret societies had existed in Poland since 1821. In May, 1829, Nicholas was crowned at Warsaw. In 1828, however, a secret society had been instituted, for the purpose of gaining over the officers of the army to the cause of independence; and to their agency is the insurrection of 1830 to be attributed. It appears, nevertheless, that it was immediately occasioned by a sham conspiracy got up by the Russian police, who had thus induced a number of young men to betray themselves, and crowded the prisons with the victims. Not only the Polish officers, the youth of the military school, and the students, had been gained over to the cause of the patriots; but the greater part of the citizens, and the chief nobles, were ready to encourage an effort to save themselves from what they now foresaw—the occupation of Poland by a Russian army, and the marching of the Polish troops to the south of Europe. Such was the state of things when the insurrection at Warsaw broke out, Nov. 19, 1830. A young officer entered the military school, on the evening of that day, and called the youth to arms. They immediately proceeded to Belvidere, the residence of Constantine, about two miles from the city, for the purpose of seizing his person. They were joined, on the way, by the students of the university, and forced their way into the palace; but the prince was concealed in a clothes-press, by a servant, until he could make his escape by a secret door. Another party of cadets and students paraded the streets, calling the citizens to arms, and they were joined by the Polish troops. The arsenal was seized, with 40,000 stand of arms, and the insurrection now became general. On the next morning, 40,000 troops and citizens were in arms, and the Russians were expelled from Warsaw. The administrative council was summoned to preserve order, and, to give more influence to its measures, several of the most distinguished Poles were invited to sit with it. Measures were taken for the organization of a national guard, and of a new police and municipal government. December 3, the prince was allowed to leave the neighborhood of Warsaw, with three regiments of Russian cavalry, and two regiments of infantry, without opposition. On the 5th, general Clopicki was proclaimed dictator till the meeting of the diet, which was convoked for the 18th. Meanwhile Nicholas issued a proclamation (December 17), in which he declared that no concessions could be made to the rebels, and, on the 24th, another, addressed to the Russians, telling them that the Poles had dared to propose conditions to their *legitimate* master: "God," he adds, "is with us, and, in a single battle, we shall be able to reduce to submission these disturbers of the peace." January 24, the Polish diet, which had been opened on the 18th of December, declared the absolute independence of Poland, and the termination of the Russian dominion, and, on the 25th, that the Polish throne was vacant. The account of the war which followed, and of the disposition made of Poland, will fall under the article *Russia*. An excellent work respecting Poland, though written with an evident hatred of Catharine and Poniatowski, is Rulhière's *Histoire de l'Anarchie de Pologne et du Démembrement de cette République* (4 vols., Paris, 1807). Respecting the first partition of Poland, see Von Dohm's *Denkwürdigkeiten* (1 vol.), and *Lettres du Baron de Vioménil* (Paris, 1808), and Malte Brun's *Tableau de la Pologne ancienne et moderne*, of which a new edition has recently been published. Consult, also, Jekel's historical and statistical works on Poland and Galicia (Vienna, 1804—9); Flatt's *Topographie des Herzogthums Warschau* (Leipsic, 1810); and Von Holsche's *Geographie und Statistik von West- Sud- und Neuostpreussen* (Berlin, 1807). Three works in the Polish language are deserving of recommendation—Y. S. Bandtke's Affairs of the Polish Nation (Breslau, 1826), Ad. Naruscewitsch's History of the Poles, and Jul. Urs. Niemcewicz's Reminiscences of ancient Poland (Warsaw, 1822). To these may be added Alex. v. Bronikowski's History of Poland (4 vols., Dresden, 1827); Salvandy's *Hist. de Pologne, avant et sous J. Sobieski* (Paris, 1829); Fletcher's History of Poland (8vo., London, 1831). Much information, especially respecting the period of 1794—98, is contained in Mich. Oginski's *Mémoires sur la Pologne et les Polonais depuis* 1788—1815 (Paris, 1826, 4 vols.); and the same author's *Observations sur la Pologne et les Polonais pour servir d'Introduction aux Mémoires, etc.* (Paris, 1827).

Polish Language. The uncertainty of the earliest Polish history spreads a deep obscurity over the rise and progress of the language. It is of Sclavonic origin, as its whole structure proves, but borrowed, from the people who had previously inhabited the country, such a multitude of hard consonants, that it differs very much in this respect from its eastern sister, the Russian language. The cultivation of the language early met with a great obstacle on account of the adoption of Christianity, according to the Latin ritual in 965; for the clergy, being the most cultivated order, took possession of the places of honor and the public offices, so that the Latin language became the language of the state, and afterwards, on account of the kings and queens being foreigners, the language of the court and of all the educated classes also. The language of the country first recovered its rights in the reign of Sigismund, in the sixteenth century, and became, in the middle of that century, the language of books; it then declined in the seventeenth, but flourished again during the reign of Stanislaus Augustus, and ripened to a maturity of which even the subsequent political changes could not entirely deprive it. In 1801, a society for the preservation of the purity of the Polish language was formed at Warsaw, under the direction of the bishop Abbertrandi, and, in 1802, published the first volume of their transactions. The language can appear harsh and rough only to those who are unacquainted with it; notwithstanding the multiplicity of consonants, it is superior in harmony and flexibility to the other Sclavonic dialects. Of the grammars, after that by the Piarist Copczynski, the following may be recommended; that by Mongrovius (3d edition, Dantzic, 1827), and Vater (Halle, 1807), particularly that by George Bandtke (a new edition, Breslau, 1824), and the First Principles of the Polish Language, by Meozinski (Warsaw, 1822). Of dictionaries, that by Bandtke (Breslau, 1806), and the great one by Linde, are the most valuable. The latter is in six quarto volumes.

Polish Literature. Although the marriage of Miecislaw with Dombrowka, the daughter of the king of Bohemia, led to the introduction of Christianity into Poland, in 965, the continual domestic and foreign wars prevented this event from producing any favorable effect on the civilization of the country. The political literature begins, in the twelfth century, with the chronicles of the country, written in Latin, by Mart. Gallus (about 1109), Nicholas Kadlubek (died in 1223), and Boguphalus (died 1255), and the chronicle of the popes and German emperors by Mart. Strzempski, or Polonius (died in 1279). A new edition of Vincent Kadlubeck's *Res gestæ Principum ac Regum Poloniæ* appeared at Warsaw, in 1824, together with Dzierswan's *Chronicon Polonorum* (of the thirteenth century). After a long cessation, Casimir III, or the Great, who reigned from 1333 to 1370, improved the state of things. He not only built many cities, but, in 1347, drew up a code of laws, first held the diets, encouraged agriculture and manufactures, and founded, in 1347, the university of Cracow, which was revived in 1400, but was not in a flourishing condition till the sixteenth century. The seed sown by him ripened slowly and silently, and the progress of cultivation first became apparent in Joh. Dlugosz's (bishop of Lemberg) Polish history (he died in 1480), which was rich in materials and in documents. The first Polish printing-press was established at Cracow, in 1488. (See Bentkowski, *On the oldest printed Works in Poland*, Warsaw, 1812, and Bandtke's *History of the Cracow Printing-presses*.) Under the prosperous reigns of the two Sigismunds, from 1507 to 1572, the proper national literature began, which, in a remarkably short time, made a wonderful progress. The reformation, which met with the silent favor of government, and found so many adherents, that even the Socinians were tolerated, contribute to increase freedom of thought. Under the vigorous reign of Stephen Bathory, from 1576 to 1586, the literary activity did not cease, and in the following reigns the royal general, Joh. Zamoyski, effected much by the establishment of institutions, and by his own example. But he was the last active promoter of the national culture, and it was owing to him that it did not decline under the feeble reign of the Swedish Sigismund, and the injurious influence which the zealous and ambitious Jesuits exerted on freedom of thought and of the press. That it did not rise higher, is to be attributed to the unhappy fate of the country, distracted by party violences, so that even its national existence was frequently endangered. Under the Saxon princes, literature was not in a more promising condition; but it flourished more under the wise administration of the accomplished Stanislaus Poniatowski, and attained, during his reign, such a vigor, that even the subsequent storms, in the course of which Poland was erased from the list of states, were not able to destroy it. The Polish literature is not very valuable in a scientific point of view, though it has produced many excellent works in this department; but its greatest interest is owing to its pure nationality, of which the literature of few nations can boast in the same degree. At no period did the bold and aspiring national spirit of this active people fail, however full of foreign usurpation the history of Poland may be. The literature always continued to advance with the state of society, and turned mostly on those points which are of the highest interest in the relations of a state. Hence the almost total absence of philosophers and mathematicians (the astronomers Copernicus, and Pockzobut, Joh. Sniadecki, and the natural philosophers, Rogalinski and Jos. Sosinski, excepted); hence also, on the other side, the abundance of national historians and of lofty poets praising the exploits of their ancestors, or lamenting the present state of their country In works of mere fiction they met with less success: still the Poles successfully transferred to their own language the productions of other nations. The ex-Jesuit Ign. Nagurczweski translated the Iliad, Virgil's Eclogues, and other writings of antiquity; the excellent critic Francis Dmochowski translated, in noble flowing language and easy versification, the Iliad (Warsaw, 1800, 3 vols.); and there is another translation of this poem, together with the Odyssey, by Przybylski; Pet. Kochanowski translated Tasso's Jerusalem (Cracow, 1687; edited by Czayowski, professor of Polish literature at the university of Cracow, Breslau, 1825); Krasicki, Tymieniecki and Brodzinski translated Ossian; Joh. Kochanowski, and afterwards Naruscewicz, Horace. The latter, in a masterly manner, and perfectly in the spirit of the original, translated Tacitus; and Karpinski, the *Jardins* of Delille. The historians who deserve mention are, Stryikowski (author of the Lithuanian Chronicle, from the best sources), Stanislaus Orzechowski, Mart. Cromer, Joh. Demetr. Sulikowski, Stanislaus Kobierzycki (who wrote a history of Wladislaus IV, in classical Latin), the spirited Piasecki, the impartial Vespasian Kochowski, and, above all, the celebrated Jesuit Naruszewicz (q. v.), distinguished alike for deep research, critical acuteness, and the excellence of his manner. The latter began the general history of the Poles, the continuation of which several members of the royal Warsaw society of sciences undertook in the name of the society. Niemcewicz (q. v.), esteemed as a statesman, a warrior and a poet, has published national historical songs (with engravings and music, 1815), with historical illustrations. Count Potocki has distinguished himself by his history of the fine arts in his *Polish Winckelmann* (Warsaw, 1816, 4 vols.), by his Rhetoric, and by his Political and Occasional Speeches (Warsaw, 1815, 5 vols.). Count Seb. Sierakowski has published a splendid work on architecture; Bratymowicz, well known for his services in draining the marshes in the vicinity of Pinsk, and for his plan for the union of the navigable rivers of Poland, a work on agriculture. Barth. Paprocki, Okolski, and Casp. Niesiecki, who is not sufficiently valued by many, have published important works on genealogy and heraldry. Stanislaus Konarski is distinguished as a writer on politics and education, and Andr. Zamoyski (1777), as the author of a Polish code of laws, which was unwisely rejected by the diet, that had caused it to be drawn up. Kluk, Ladowski and Jundzill wrote on natural history. The oldest and finest monument of Polish poetry is the works of Joh. Kochanowski (born in 1550, and died in 1584), which are distinguished for their pure and noble style, beauty of versification, delicacy and feeling. They consist of a translation of the Psalms, a didactic poem on chess, songs, elegies and epigrams. Sim. Simonowicz is still a model in the idyl, and Stanislaus Grochowski in sentimental lyric poetry. Vespasian Kochowski and Joh. Twardowski, in the seventeenth century, are not remarkable for taste, but the latter is distinguished for his fire. Of the moderns, Stanislaus Trembecki, Francis Kniaznin, Francis Zablocki, Kajetan Wengierski, Valer. Gorski, Francis Wenzyk, Dysma Tomaszewski, the animated Kajet. Kozmian, Tymowski, Louis Osinski, Reklewski, the fiery Kasim. Brodzinski, the tasteful Joh. Kruszynski, the epigrammatic and flowing, but incorrect Ant. Gorecki, the correct Alois Felinski, Francis Marawski, the national and Pindaric Joh. Woronicz, deserve to be mentioned. Franzisczek Karpinski is esteemed for his noble and pure language and deep and tender feeling (Lyric and Elegiac Poems, Warsaw, 1790, 2 vols.). The great, but unhappy king Stanislaus Leczynski also composed with success. But the prince-bishop Ignatius Krasicki (q. v.), who died in 1802, is the only writer who is classic both as a poet and prose writer: he is also a witty satirist, the only original epic poet (*Woyna Chocimska*) of the Poles, and the translator of Ossian. In 1817, Dyrma Tomascewski published a heroic poem in 12 cantos, under the title *Jagellonida* (the Union of Lithuania with Poland). (See Bowring's *Specimens of the Polish Poets*.) The literature of Poland is rich in popular songs (*Salanki Polske*, Warsaw, 1778), and also in dramatic works, of which the most celebrated are those of Jos. Bielawski, Francis Zablocki, Jos. Kossakowski, Niemcewicz, Drozdowski, Louis Dmuscewski, Francis Wenzyk, Felinski, Louis Osinski, Alb. Boguslawski, Ant. Hoffman, &c. The dramatic works written between 1770 and 1794 are mostly contained in a collection (*Teatr Polski*, Warsaw 1778, seq., 56 vols.). As pulpit orators, Lachowski and Wyrwicz are known even in foreign countries by translations. In general, the old Polish authors, particularly of the time of Sigismund Augustus and Stephen Bathory, are still the classical models of the Polish style, although great changes took place in the Polish language in the eighteenth century. Joh. Kochanowski, Skarga, Wuiek, Bialobrzeski, Gornicki, Stanislaus Grochowski, Seb. Petrycy, Joh. Januszowski, Cyprian Bazylik, Mart. Blazowski, Mart. Bielski, and others, are yet esteemed as classics. Of the modern classical prose writers of Poland may be mentioned Ignatius Krasicki, a model of ease and nature, Joh. Sniadecki, Naruszewicz, Skrzetuski, Jodlowski, Czacki, Louis Osinski, Stanislaus Potocki, Albertrandi, Karpinski, Dmochowski, Alb. Sweykowski, and others. The work which appeared at Warsaw, in several volumes, entitled *Wybor Pisar' zow Polskich*, contains a selection from the classical authors of Poland. The royal society of the Friends of Science at Warsaw has rendered important services to Polish literature. It has published several volumes of transactions. In 1815, three literary journals in the Polish language were published at Warsaw, Wilna and Lemberg. In 1818, there were six. —See *Letters, Literary and Political, on Poland* (Edinb., 1823). The Polish nobility were never strangers to literature; and of late years the spirit has spread to the other citizens, and both within the limits of what now constitutes the kingdom, and in all the countries formerly belonging to it, a literary activity has prevailed since the general peace in Europe, in 1815, assisted by learned societies, and periodical publications and journals, whose wings, indeed, have been clipped by an arbitrary censorship. Warsaw, Wilna, Cracow, Lemberg, Posen and Breslau have been the central points of intelligence. Learned inquirers have, in the most recent periods, labored to develope the Polish language, and to purify it from the foreign terms with which it has been overloaded. A literary history of all the Sclavonic nations was undertaken, some years since, by Linde, at Warsaw, assisted by many scholars of distinction. Endeavors have been made to collect the historical documents of former times, which are still in existence, and to obtain better editions of the old original authors. A new edition, in two volumes, of Bandtke's History of Poland, in the Polish language, appeared at Cracow and Warsaw in 1822. Surowiecki, who died in 1827, distinguished himself by his historical and statistical writings, as well as Michael Oginski, by his Memoirs of Poland, in the French language. Efforts have been made also to collect works of art illustrative of Polish history, and the episcopal palace at Cracow has been converted into a museum for such monuments. The *Monumenta Regum Poloniæ Cracoviensia* has been published in numbers, at Warsaw, commencing in 1822, and consisting of engravings, illustrated by a text in Polish, Latin and French. The Polish nation has erected to the hero Kosciusko, at Cracow, a monument of stupendous proportions, and after the old Sarmatian fashion, consisting of a hill 120 feet high, and about 280 in diameter at base. The rich nobles of Poland have never been deficient in a love for making collections. Count Stanislaus Potocki, while he superintended the department of public instruction, from 1803 to 1821, set the example of throwing open these collections to the public use; and a library, which owes its present consequence principally to Linde, who collected, in 1819, from the suppressed monasteries, 40,000 volumes, including many very valuable works, offers important means of study, which have been diligently improved by the people. Among the authors who are the favorites of the nation, and have gained the most decided influence, are Fz. Karpinski (who died in 1820); Trembecki (who died in 1812), distinguished as a lyric poet, fabulist, didactic poet and epistolary writer; Stanislaus Zachowitsch, for his Fables and Tales (2d edit. 1826, at Warsaw). Still higher stands Julius Niemcewicz (q. v.), whose patriotic historical songs have become the possession of the people (Warsaw, 1816 and 1821). A dramatic work of general Boguslawski, *Krakowiani i Gorali* (Warsaw, 1823), is interesting for the number of its patriotic songs. The dramatic works of count F. Wezyk (National Historical Tragedies, Cracow, 1823), and the nine Comedies of Count Alex. Fredro (in Polish, Vienna, 1826, 2 vols.), deserve mention. There are Polish romances by count Frederic Skarbeck. J. U. Niemcewicz has imitated sir Walter Scott in his historical romance *Jan. Y. Tenczyna* (Warsaw, 1827, 3 vols.). The exact and experimental sciences, also, have not been neglected of late years. Arnold, at Warsaw, is devoted to the literature of natural history. Botany appears not to have attracted, as yet, the interest which the unexplored treasures of the vegetable kingdom of Poland deserve. Of medical treatises there are not a few, though the influence of foreign models is generally apparent in them. Societies are active for the advancement of agriculture. Gardening has received the attention of men of high standing; and the president of the senate of Cracow, Stan. Wodzicki, has written a treatise to make his country men acquainted with the trees and shrubs which will endure the climate of the country. Works upon jurisprudence have been written by Macieiowski, Budny and Sanwicki. The present university of Warsaw arose from the law school founded by count Lubieuski. With respect to the historical literature of Poland, we refer particularly to the *Revue Encyclopédique* (Oct., 1827).

POLAR BEAR. (See *Bear*.)

POLAR EXPEDITIONS. (See *North Pole, Expeditions to*.)

POLARITY. (See *Electricity*, and *Magnetism*.)

POLARIZATION OF LIGHT; a new branch of optical science, that has sprung from an observation of Malus, who noticed that when a beam of light is reflected from the surface of a transparent body, at a certain angle, it acquires the same singular property which is impressed upon it in the act of double refraction. (See *Refraction, Double*.) If a solar ray fall on the anterior surface of an unsilvered mirror plate, making an angle with it of 35° 25′, the ray will be reflected in a right line, so that the angle of reflection will be equal to the angle of incidence. If, in any point of its reflected path, we receive it on another plane of similar glass, it will suffer, in general, a second general reflection. But this reflection will vanish, if the second plate of glass form an angle of 35° 25′ with the first reflected ray, and at the same time be turned so that the second reflection is made in a plane perpendicular to that in which the first reflection takes place. For the sake of illustration, suppose that the plane of incidence of the ray on the first glass, coincides with the plane of the meridian, and that the reflected ray is vertical: then, if we make the second inclined plate revolve, it will turn round the reflected ray, forming always with it the same angle; and the plane in which the second reflection takes place will necessarily be directed towards the different points of the horizon in different azimuths. This being arranged, the following phenomena will be observed:—When the second plane of reflection is directed in the meridian, and consequently coincides with the first, the intensity of the light reflected by the second glass is at its maximum: in proportion as the second plane, in its revolution, deviates from its parallelism with the first, the intensity of the reflected light will diminish; finally, when the second plane of reflection is placed in the prime vertical, that is, east and west, and consequently perpendicular to the first, the intensity of the reflection of light is absolutely null on the two surfaces of the second glass, and the ray is entirely transmitted. Preserving the second plate at the same inclination to the horizon, if we continue to make it revolve beyond the quadrant now described, the phenomena will be reproduced in the inverse order; that is, the intensity of light will increase precisely as it diminished, and it will become equal at equal distances from east and west. Hence, when the second plane of reflection returns once more to the meridian, a second maximum of intensity, equal to the first, recurs. From these experiments it appears, that the ray reflected by the first glass is not reflected by the second, under this incidence, when it is presented to it by its east and west sides; but that it is reflected, at least in part, when it is presented to the glass, by any two others of its opposite sides. Now, if we regard the ray as an infinitely rapid succession of a series of luminous particles, the faces of the ray are merely the successive faces of these particles. We must hence conclude that these particles possess faces endowed with different physical properties, and that, in the present circumstance, the first reflection has turned towards the same sides of space similar faces, or faces equally endowed, at least, with the property under consideration. It is this arrangement of its molecules which is called the *polarization of light*, assimilating the effect of the first glass to that of a magnetic bar, which would turn a series of magnetic needles all in the same direction. Similar phenomena may be produced, by substituting for the mirror glasses polished plates, formed, for the greater part, of transparent bodies. The two planes of reflection must always remain rectangular, but they must be presented to the luminous ray at different angles, according to their nature. Generally, all polished surfaces have the property of thus polarizing light, more or less completely; but there is for each of them a particular incidence in which the polarization that it impresses is most complete. When a ray of light has received polarization in a certain direction, by the process just described, it carries with it this property into space, preserving it without perceptible alteration, when we make it traverse perpendicularly a considerable mass of air, water, or any substance possessed of single refraction. But the substances which possess double refraction, in general, alter the polarization of light, and apparently in a sudden manner, communicating to the polarized ray a new polarization of the same nature, but in another direction. Among the most interesting phenomena connected with this subject, are the colors produced by the action of crystallized bodies upon polarized light. When thin plates of glass, selenite, mica, agate, quartz-crystal, tourmaline, &c., are exposed in a beam of polarized light, the most beautiful and vivid colors, resembling those observed by Newton in thin films of air or liquids, only infinitely more striking, make their appearance. The attentive examination of these colors has led to a theory both of polarization and double refraction, which, says Herschel, in his Discourse on the Study of Natural Philosophy, is so happy in its adaptation to facts, and in the coincidence with experience of results deduced from it by the most intricate analysis, that it is difficult to conceive it unfounded. Our limits do not permit us to go farther into this interesting subject; for a more complete elucidation of which, we must refer the reader to the article *Polarization of Light*, in the *Library of Useful Knowledge*.

Pole, Reginald, cardinal, an eminent statesman and ecclesiastic, born in 1500, was the son of sir Richard Pole, lord Montacute, cousin to Henry VII, by Margaret, daughter of the duke of Clarence, brother to Edward IV. He entered into deacon's orders at an early age, and had several benefices conferred on him by Henry VIII, with whom he was a great favorite. In 1519, he visited Italy, and returned to England in 1525, but, in consequence of the affair of the divorce from Catharine of Arragon, withdrew to Paris. Henry desired to obtain the concurrence of his kinsman in that measure; but Pole, imbued with the maxims of the church of Rome, drew up a treatise *De Unitate Ecclesiastica*, in which he excited the emperor Charles V to revenge the injury of his aunt. The consequence of this conduct was the loss of all his preferment in England, in return for which, he endeavored to form a party against Henry, which design terminated in the destruction of his brother, lord Montacute, and of his aged mother, then countess of Salisbury, whom the vindictive Henry sent to the scaffold. But the countenance of the court of Rome was extended to Pole, and, besides being raised to the dignity of cardinal, he was employed in various negotiations. He was also appointed one of the three papal legates to the council of Trent. On the accession of Mary I, his attainder was reversed, and he was invited to England, where he endeavored to moderate the rigor of Gardiner and others against the reformers, and was an advocate for lenient measures, and such a correction of clerical abuses as would conciliate them. On the death of Cranmer, Pole, then, for the first time, ordained priest, became archbishop of Canterbury, and was, at the same time, elected chancellor of both the universities; and, while he acted with much severity in the extirpation of heresy, he made several salutary regulations for the advancement of learning. He died in 1558. Cardinal Pole seems not to have been a man of commanding talents, either political or literary; but he merited great esteem for his mildness, generosity, and comparative moderation, in an age when persecution was deemed lawful on all sides.

Pole, in magnetism. Two points of a loadstone, corresponding to the poles of the equator, the one pointing to the north, the other to the south, are called *poles*. (See *Magnetism*.)

Pole or Polar Star is a star of the second magnitude, the last in the tail of Ursa Minor.

Pole, Perch, or **Rod**, in surveying, is a measure containing sixteen feet and a half.

Pole-Axe; a sort of hatchet nearly resembling a battle-axe, having a handle about fifteen inches long, and being furnished with a sharp point, bending downwards from the back of its head. It is principally used on board of ships, to cut away the rigging of an adversary who endeavors to board. They have also been sometimes employed in boarding an enemy whose hull was more lofty than that of the boarders, by driving the points into her side, one above another, and thereby forming a kind of scaling-ladder; whence they are sometimes called *boarding-axes*.

Poles of the Ecliptic; two points on the surface of the sphere, 23° 30′ distant from the poles of the equator, and 90° distant from every part of the ecliptic.

Polemburg. (See *Poelemburg*.)

Polenda, or **Polenta**; a national dish in Italy, particularly in the northern part of the country, but very common in all the Mediterranean seaports. It is a kind of soft pudding made of the flour of chestnuts or maize, generally with small pieces of meat in it.

Police, in the common acceptation of the word, in the U. States and England, is applied to the municipal rules, institutions and officers provided for maintaining order, cleanliness, &c.; but in all the great countries of the European continent, there is, besides this police, a military police extending over the whole state, and what is called the *high police*, which is occupied in watching the political tendency of the people, and every thing connected with it. It is evident that a police of this sort, as a regular instrument of the government, is incompatible with English or American liberty. This high police generally forms a department under a minister; several branches of the lower police are generally connected with it, sometimes all except the lowest street police. The end of the high police is obtained chiefly by means of the secret police—that cancer which eats into the vitals of society, and the pollution of which Great Britain may be proud of having escaped, notwithstanding the violent political changes which she has undergone. The secret police consists of a body of people of all classes, needy men and women of rank, mistresses, &c., down to the waiters of coffee-houses, and the lowest visitors of taverns and houses of ill-fame, who report whatever they hear against the government. How often do they not invent stories to render themselves important! The deplorable consequences of an institution so destructive to all confidence and sense of security, are obvious, especially when it is considered that its instruments are the most worthless part of the community. On the reports of such miscreants men's lives and liberties depend; and the charges being kept secret, no means are afforded of refuting them. These agents are not unlike the familiars of the inquisition. This institution originated in France, if we do not consider the informers, whom every tyrant probably has had, as a secret police. The marquis d'Argenson, under Louis XIV, was the inventor of it. He was *lieutenant-général de la police* from 1697 to 1718 (since 1667 this had been a separate office). The prevailing licentiousness had occasioned innumerable outrages, and D'Argenson, called by his contemporaries *Rhadamanthus*, hunted out crime in its deepest recesses, and brought it to light, whatever was the rank of the offender. Sartines, director of the police of Paris, with the same power, but not the same rank, conducted the secret police from 1762 to 1774, and extended it very much; he was equally active with D'Argenson, but not so honest. He had agents in all the countries of Europe. Many stories are told of his skill in detecting crime, while others exist of a less creditable character, such as his sending a pheasant dressed with diamonds to his mistress; and when another refused to take a costly brilliant ring, he had the stone pounded to dust, and strewed the powder on the ink of a note addressed to her. Louis XVI took the charge of the police from him, and made him minister of the marine, in which office his total inexperience made him ridiculous. (Mad. de Staël, *Considérations sur la Révolution Franç.* i. chap. 8.) Lenoire followed (1774—1784), an honest man, who improved many departments of the police in Paris. The empress Maria Theresa requested him to write a work for her on the subject of police regulations, and the *Détail sur quelques Établissemens de la Ville de Paris, demandé par S. M. I. la Reine de Hongrie* (Paris, 1780), was the result. He died poor, in 1807. Le Crosna followed him. He was unimportant. Never was the department of the police in the hands of a more active and sagacious politician than Fouché; never was a secret police so thoroughly organized over, we might almost say, all Europe; and when the charge of the public police was taken from him, he had a police of his own, to watch the movements of Savary, as Napoleon had had his *contre-police* against Fouché, in which the emperor, however, was always inferior to the minister. The most glaring instance of the abuse to which the secret police is always liable, is the death of the duke d'Enghien, who perished in consequence of the reports of the secret police. Perhaps, however, there are cases in which its employment is justifiable. When a fundamental change has taken place in the government of a country (like the late one in France), and a numerous party exists, not constituting what is called, in free governments, an *opposition*, but actually striving to overthrow the established order,—as, for instance, the Carlists, who exist at present in France,—under such circumstances, a secret police may, perhaps, be admissible, as poisons are prescribed in some dreadful diseases, producing bad effects undoubtedly, but preventing worse. Such a department should never be intrusted but to a man of unquestionable honor and integrity. After the war of 1815, Prussia declared that the secret police—a necessary evil in times such as had just terminated—was abolished for the future. Whether it actually was abolished for a moment, we do not know; but we know that it existed not long after, and flourishes at present in that country, as in all other important governments on the European continent. One duty of the secret police always is to open suspected letters; and this was done even under Louis XIV. The more absolute a government is, and the more it strives to be the sole moving and regulating principle of the society, to the destruction of individual freedom, the more will the police be developed; whilst, on the other hand, the freer a country is, and the more it follows the principle, that every thing which can be possibly left to take care of itself, should be so left, the more strictly is the police confined to mere matters of municipal regulation. The scientific spirit of the Germans, connected with the character of their governments, has given rise, in that country, to the *police sciences*, so called, which are systematically developed and thoroughly cultivated. It is true, that, from the arbitrary nature of the governments, this branch of administration is extended to many subjects which, in freer states, would be left to general law or individual discretion; but, as it is obviously much easier to perfect some branches of the police in absolute governments than in free countries, particularly the medical police, valuable hints may be derived from the German system. In no country has the medical police been so much developed (frequently, it is true, to the annoyance of the people) as in Prussia, because no country ever combined more scientific men with an absolute government. Without, then, taking the Prussian medical police as a model in every particular, it has many points which it would be wise in other nations to imitate. In free countries, the place of a secret police is, in a great measure, supplied by public opinion and the liberty of the press; and it is curious to observe how the most secret transactions, or correspondence, will by degrees come to light; in fact, in some free countries, a politician needs to be quite as much on his guard against making statements in writing, as in absolute governments, since the danger of their reaching the press is as great as that of their detection by a secret police. The first police regulations are met with in Egypt. (q. v.) The Mosaic code, partly founded on the Egyptian, contains many rules of this sort. The police of the Greeks was excellent. With them, as with their imitators the Romans, the police formed a separate branch of the administration. The capitularies of the Frankish kings contain the next police regulations. In 1548 and 1577, the German empire became subject to such regulations. Some account of the police of London is contained in the article *London*. The king of England, in his speech from the throne in the winter of 1831, recommends an improvement of the police of the kingdom. (See *Politics*.)

Policinello. (See *Punchinello*.)

Policy of Insurance. (See *Insurance*.)

Polignac, Melchior de, abbé, and subsequently cardinal, a French diplomatist, born 1661, died 1741, was descended from a distinguished family of Languedoc. In 1689, he rendered himself conspicuous by his address in the negotiations with pope Alexander VIII, relative to the articles adopted by the French clergy in 1682. In 1693, the abbé de Polignac was named ambassador extraordinary to Poland, for the purpose of detaching John Sobieski from the league with Austria, and drawing him over to an alliance with France. On the death of Sobieski (1696), he was employed in endeavoring to effect the election of the prince of Conti to the Polish throne. His intrigues, though seconded by large bribes, were, however, unsuccessful. On his return to France, in 1698, he was banished the court on account of the failure of this mission. In 1710, he was sent to take part in the negotiations at Gertruydenberg, and, in 1712, was appointed plenipotentiary to the congress of Utrecht, and was afterwards minister to the court of Rome. As a writer, Polignac is known by his didactic poem, in eight books, against the Epicurean system, entitled *Anti-Lucretius, seu de Deo et Natura* (Paris, 1747), which has been translated into English, French and German. He died in 1741. (See the *Histoire du Cardinal de Polignac*.)

Polignac, Auguste Jules Armand Marie, prince de, ex-minister of France, was born in 1780. His mother, the favorite of Marie Antoinette, and governess in the royal family, was married, in 1767, to the count de Polignac, who was descended from the same illustrious family as the cardinal. (*See the preceding article.*) In 1780, her husband was created duke, and, soon after, the duchess became governess to the young dauphin. In 1789, in consequence of some manifestations of popular hatred, she and her husband left France, with the count d'Artois (since Charles X), the prince of Condé, &c. She died soon after (1793), at Vienna. The duke de Polignac died at St. Petersburg in 1817. The subject of this article emigrated from France with his parents, and his elder brother Armand (born 1771), and resided first in Russia and then in England, in which country he was aid to the count d'Artois. The two brothers were engaged in the plots of Georges and Pichegru, the elder having landed in France with the former (December, 1803), and the younger with Pichegru, in the following January. On the detection of the conspiracy, Armand was condemned to death, and Jules to two years' imprisonment. At the time of this trial, the two brothers gave a remarkable proof of fraternal affection: Armand pleaded that mercy ought to be extended to his brother, who was young, and whom he had led into the danger. Jules, on the other hand, entreated the judges to spare the life of his brother, and to accept his own instead: "I," said he, "am a single man, without fortune or station; my brother is married: do not drive a virtuous woman to despair; and, if you will not spare him, at least let me share his fate." Napoleon, yielding to the tears and prayers of Mad. de Polignac, who, encouraged by Josephine and Hortense, threw herself at the feet of the emperor, commuted the sentence of Armand to imprisonment, and he remained in confinement at Ham, in the Temple, and at Vincennes, several years. The brothers still, however, continued to engage in the intrigues against the emperor, and took part in the conspiracy of Mallet. In 1814, they escaped, and joined Monsieur (Charles X), who sent them with full powers to Paris, where (March 31) they planted the white colors. Jules was soon after sent by the king on an embassy to Rome, and, in May, 1815, he followed the court to Ghent (see *Louis XVIII*), whence he was despatched to Savoy, to rally the emigrant royalists. On this latter mission he rendered important services, and, after the second restoration, was created (Aug. 17, 1815) peer of France. He was one of the peers who at first refused to take the oath of admission, principally on the ground that it was contrary to the interests of religion, but, after the delivery of the king's speech, on the opening of the chambers in 1816, professed himself satisfied by the declarations therein contained, and took the oath in the form prescribed. In 1816, he married Miss Campbell, the heiress of a rich Scotch family. He was subsequently appointed ambassador to London, and, in August, 1829, was recalled to take the place of president of the ministry. (See *France, History of.*) From the first, prince Polignac was regarded with suspicion by the friends of constitutional liberty in France. His known disposition, the character of his associates, the bigotry of the king, and the open menaces of the royalist faction, prevented the possibility of any cordial coöperation between the ministry and the chambers, and finally precipitated Charles X from his throne. The history of this eleven months will be found in the article above referred to. The prince was arrested at Granville (Aug. 15), in the disguise of a valet, and conveyed to Paris to await his trial. He was defended before the peers by his predecessor in office, Martignac, declared guilty of treason, and sentenced to civil death. Dec. 29, he was transferred, with his colleagues, to Ham. (See *Procès des Ex-Ministres*; 2 vols., 8vo., Paris, 1831.)

Polis; a Greek word (πόλις) for *city*, which appears in many geographical names, as *Nicopolis*. In Russian, it is *pol*, as *Stavropol* (city of the cross). In some names, it has become *ple*, as in *Constantinople*; and, in some French names, *ble*, as *Grenoble*, from *Gratianopolis*.

Polish History, Language and Literature. (See *Poland.*)

Polish Legions. The unfortunate result of the glorious revolution in Poland in 1794, and the third partition of that unhappy country, in 1795, filled Europe with Polish refugees, who eagerly joined the armies of republican France. In October, 1796, general Dombrowski laid before the directory a plan for raising a legion of Polish patriots, to serve under the French general against the common enemies of France and Poland. The directory recommended him to lay his plan before the Cisalpine republic, and, with the approbation of general Bonaparte, the government of that republic agreed (Jan. 7, 1797) to take a body of Poles into pay, who were to be allowed to retain their national costume, but adopted the French cockade. By April, the number under Dombrowski amounted to 5000. They served in Italy against the Austrians and Russians, and distinguished themselves on various occasions. After Bonaparte became consul, two legions were taken into French service,—that of Italy, under Dombrowski, and that of Germany, under Kniaziewicz. The latter was mainly instrumental in gaining the victory of Hohenlinden. After the peace of Luneville, both legions were sent to Italy, and amounted to 15,000 men. Their services being no longer needed, and the situation of France, in regard to the powers that had swallowed up Poland, being changed, all the promises which had been made to the Polish patriots were forgotten: they were obliged to serve in St. Domingo, Spain, &c. The Polish legions had, however, contributed to keep up a national existence for Poland, after the Polish state had ceased. A civil committee, the shadow of the Polish government, was kept sitting either at Paris or in Italy, strictly observing the minutest rules of the diet, in order that the constitutional character of their acts might not be questioned. They literally, therefore, formed a *nation sans patrie*, constantly looking forward to the recompense which they had been encouraged by France to hope for—the reëstablishment of Poland; and it is an interesting fact, that, whenever the thanks of the French nation were voted to the gallant legion, Dombrowski invariably, in his answer, reminded the French government of its engagements towards Poland. Their expectations were at last, in some degree, realized in 1807 and 1808, when Napoleon constituted the grand-duchy of Warsaw (with 4,000,000 inhabitants), composed of Polish provinces, torn from the clutches of Austria and Prussia. Frederic Augustus, king of Saxony, was named grand-duke. (See the article *Poland;* see, also, Chodzko's *Histoire des Legions Polonaises en Italie;* 2 vols., Paris, 1829.)

Politianus, Angelus; a learned and elegant scholar of the fifteenth century, born in 1454, at Monte Pulciano, in the Florentine territories, whence he derived the appellation by which he is more usually known than by that of *Cinis*, his family name. The first production which brought him into notice was a Latin poem on the tournament of Giuliano de' Medici. He assumed the ecclesiastical habit, and acquired by his accomplishments the favor of Lorenzo the Magnificent, who made him tutor to his children, and presented him with a canonry in the cathedral of Florence, which he held with the professorship of the Greek and Latin languages. Among the most esteemed of his writings are an Account of the Conspiracy of the Pazzi; a Latin translation of Herodian; and a Collection of Greek Epigrams; besides some miscellaneous works in prose and verse, and a drama on the story of Orpheus, printed in 1475. This latter piece was set to music, of which science he was so passionately fond, that his death is said to have been accelerated by his propensity. An unfortunate attachment to a lady of distinguished rank had brought on a severe illness, which was so much increased by his starting out of bed, in a fit of enthusiasm, to celebrate her beauties on his lute, that his death was the consequence, in 1494.

Political Economy is the science which treats of the general causes affecting the production, distribution and consumption of things having an exchangeable value, in reference to the effects of such production, distribution and consumption, upon the national wealth and welfare. The definition of this science has been a subject of some discussion. That of Mr. Malthus gives it a wider range than is conceded to it by Mr. M'Culloch, extending it to the investigation of the production and consumption of all that man desires, as useful and agreeable, according to which definition Mr. M'Culloch says it would include all other sciences, so that "the best encyclopædia would really be the best treatise on political economy." But Mr. M'Culloch's definition is liable to the same objection, if taken in its full literal sense; for he calls it "the science of the laws which regulate the production, distribution and consumption of those material products which have an exchangeable value, and which are either necessary, useful or agreeable." This definition would evidently, if taken in its full breadth, comprehend a very large portion of the encyclopædia. But though Mr. Malthus considered the science as comprehending all those things which men desire as useful or agreeable, yet he undoubtedly intends to limit it to certain views of this great variety of subjects. But the definitions, both of Mr. Malthus and Mr. M'Culloch, seem to be too broad. Political economy refers only to the general causes affecting the productive faculties and means of a nation, meaning by *productive faculties* and *means* the capacity and resources for producing things that have an exchangeable value. Thus the constitution of government, the laws, the judicial, social and economical institutions, the schools, the religion, morals, soil, geographical position, climate, arts, indeed all the circumstances in the character and condition of a people, as far as they have a general effect on the public wealth; in other words, the production, distribution and consumption of commodities, are subjects of this science. It is, accordingly, a science of a lofty and liberal character, not identified with that of politics, but very nearly allied to it, and, indeed, one of its branches; for a man would be but ill qualified to legislate for a state, who should be ignorant of the general laws affecting its productive capacity. This being the character of the science, it is not a little remarkable that it has not been more honored and more generally studied, as a distinct field of inquiry; for it has necessarily been studied and practically applied by all statesmen and rulers, from the beginning of time, since the effect of all measures of the government, and all causes, upon the condition of a community, must have been objects of consideration, from the dawn of human reflection, though the notions of men may have been very crude, and often erroneous, upon this as upon all other sciences. Men very early studied the human body, and even formed something like a science to account for its functions; but correct notions of anatomy are of comparatively recent origin. The science of chemistry is still more recent. That of political economy, like others, has had its stages of progress, and some of its professors consider it now to be placed upon as firm a basis, and reduced to a system of rules as completely demonstrated, as that of astronomy since the time of Newton; while others consider the present state of political economy as far below a full developement and demonstration of its principles, as the system of the nine mundane spheres, or perhaps the theory of Tycho Brahe, as compared to modern astronomy. It certainly seems to be singular, if the rules whereby a nation may be made to flourish or decay, are as well defined, and as satisfactorily demonstrated, as the theorems of geometry, that they should be so rarely and so imperfectly reduced to practice. Some of the fundamental doctrines of those writers, who have occupied the greatest space in the written expositions of this science, are not adopted by any nation whatever occupying a respectable rank in the civilized world. This might be accounted for, if the doctrines in question were professedly proposed for simultaneous adoption by all nations, like those of the peace societies; for then the doctrines might be theoretically true, but yet fundamentally inapplicable in the actual condition of the world. But these doctrines are not proposed as being subject to this condition; they are pressed upon every single people, without regard to the conduct of others, and independently of the policy that may be pursued by foreigners. It is not one of the conditions on which they are recommended, that nations must be prepared for their reception by an entire revolution in national relations and policy, and that they can have place only in the train of events attending a political millennium; their advocates profess their adaptation to the present state of national rivalships and collisions of interest. It follows that the practical truth of these doctrines is not so demonstratively proved as their advocates suppose, or that the legislators are not so wise as they should be. In this state of the case, admitting a great deal of corruption, ignorance and error, on the part of those who control the measures of the different civilized nations of Christendom, yet their general concurrence in rejecting these doctrines, even in those two or three countries where they are most confidently asserted and most learnedly inculcated, presents an authority against their practical utility quite as imposing as that of the professors by whom they are so strenuously advocated. This science, like other speculative sciences, commenced in theories; and the discussion and refutation of them still occupies a great share in the recent treatises—a circumstance which, of itself, shows that it is in rather a rude state; since, in those sciences which have reached an advanced state, the visionary systems of the first speculators are now mentioned as matters of mere historical curiosity, a formal confutation of which would be superfluous. Another circumstance indicates the rude state of this science: it is matter of common observation that the early explorers of the arcana of science assume a certain oracular, mysterious air, the infallible badge of empiricism, which always disappears on the establishment of real knowledge. And the mystical, solemn, and somewhat pompous air of many of the doctors of political economy affords some ground for suspicion that this science has not yet reached perfection. Unless we should consider the notion of some ancient nations, that plunder was the great source of national wealth, as a theory in this science, the first step in political economy was the theory of the commercial or mercantile system, which taught that a nation could grow rich only by trade, and that its growing rich in this way depended on the balance received in the precious metals, on adjusting its accounts with other nations. Neither of these views is entirely visionary; for a nation may gain wealth by carrying on either war or trade, upon very advantageous terms. It is assumed, indeed, that all commercial exchanges are only those of equivalent values. But, notwithstanding this axiom, an individual merchant or speculator will sometimes make his fortune by exchanging, or, in other words, by buying and selling. And so a nation, if it possesses some very great commercial advantage—like those of the early Spanish traders with the native Americans, who could exchange iron and bits of tin for a much greater weight of gold—may grow wealthy by trade; for the nation may in this way get, for what costs them only a day's labor, what would cost them, or what may be worth to them, five, six or twenty days' labor. The mercantile system had therefore some foundation in fact and experience; for every one will probably admit, that any particular branch of trade may be more or less advantageous to those engaged in it, and to the countries to which they belong, and that one branch may be more advantageous than another. It is said, indeed, that a disadvantageous trade will cease; and it is thence inferred that all those which continue to be carried on are profitable and useful. This is, at least, admitting that there may be a disadvantageous trade, and that some branches may be advantageous will not be disputed. The mercantile system, then, had some foundation; but, like some other theories of political economy, it was carried too far. The science of national wealth, as applied to nations generally, is reduced to very narrow limits, if we suppose it to rest wholly upon the bargains made in foreign barter. They mistook, then, in magnifying the relative importance of foreign trade as a part of the causes of national industry and resources, since the annual profit derived thence, even in a very commercial country, does not usually exceed some very inconsiderable per centage of the whole annual production and consumption. But a still more objectionable part of this theory was the supposition that the gain thus derived depended wholly upon the balance received in gold and silver,—according to which notion such a country as Mexico, a great portion of the exports of which are necessarily gold and silver, could never grow rich. The more it produced of the very articles the gaining of which alone could make other nations rich, the more demonstrably impossible it was that it should grow wealthy itself. So far, therefore, as the theory referred national growth in wealth exclusively to the receipt of such a balance of trade, and made the growth in wealth proportional to the amount of this balance, it was entirely fanciful. This theory was supported, in the latter part of the seventeenth and early part of the eighteenth century, in England, by Mr. Mun, sir Josiah Child, doctor Davenant, and sir James Stuart; but it was called in question, at the same period, by sir William Petty, sir Dudley North, Mr. Barlow, and later by sir Matthew Decker and Mr. Harris. Sir Matthew Decker's Essay on the Decline of Foreign Trade was published in 1744, and Mr. Harris's Essay upon Money and Coins in 1757. Mr. Hume treated of the same subject in his political essays published in 1757. So far, then, as this theory rested upon the notion of a money balance, as being the only source of national growth in wealth, it was ably discussed before the publication of Smith's Wealth of Nations. But the practical question at the bottom of the theory—namely, the national advantages and disadvantages of particular branches of trade, and the effect upon a nation of a trade which keeps it always in debt to another—has not been settled to this day; the economists of the *new school*, as it is termed, maintaining that all foreign trade is advantageous to a country precisely to the degree to which it is profitable to those engaged in it, and therefore that the immediate interest of the merchant, under the actual circumstances, is the infallible criterion of the national interest; while others, on the contrary, and with them most legislators, practically act upon the doctrine that the immediate interest of the merchant is not in all cases a criterion of the permanent national interest. The doctrine resolves itself into this maxim, namely, that the interest of a nation that was to exist only for two or three years, and then to be swept away by a pestilence or swallowed up by an earthquake, and of a similar one that was to exist for as many centuries, would lead to precisely the same policy for the present year in respect to foreign trade; so that no regard is to be had, in commercial regulations, to the vicissitudes of war and peace, and other changes incident to a nation. In a question, then, of vital importance, which has now been agitated for more than two centuries, the theoretical economists are divided. We think we may say, then, that the real question which gave rise to the mercantile system is still involved in much obscurity. (See articles *Mercantile System*, and *Balance of Trade*.)

The manufacturing system has been ranked as another economical theory; but it can hardly be regarded in this light. It supposes that a nation promotes its wealth and productive capacity by manufacturing for itself all those commodities, for the manufacture of which it is adapted by its climate, agricultural pursuits, and the habits and character of its people. It is not now disputed that manufacturing will contribute to the aggregate value of annual products as well as agriculture or commerce. The only questions are, 1. what descriptions of manufacturing industry will increase the productive resources of a particular country; and, 2. whether it should be an object of legislation to foster and promote these branches of industry. Those opposed to any such legislative interference, namely, the advocates of free trade, assume that the national industry, left entirely free, and open to a competition with that of other nations, will infallibly take those channels by which its aggregate results will be the greatest. The foundation of the doctrine of the *let us alone* policy was laid by Adam Smith, since whose time its advocates have assumed it upon the principles by which it is supported in the Wealth of Nations. Smith rests the doctrine upon two propositions:—1. "that every individual can judge, better than any statesman or lawgiver can do for him, what is the species of industry on which he can best employ his capital;" and, 2. "the study of his own advantage naturally, or, rather, necessarily, leads every individual to prefer that employment of capital which is most advantageous to society." The doctrine of free trade rests wholly upon these two propositions. Our limits will not allow us to consider the arguments in favor or against their soundness as the guides of legislation in all cases. For these the reader is referred to the works mentioned at the end of this article, also to Mr. Phillips's Manual of Political Economy, to Mr. Madison's letter on the subject of the protecting policy, and sundry articles of the North American Review. It is sufficient to remark here that the doctrine of free trade must be, as yet, considered merely a theory.

Another theory, in relation to national wealth, was that of Quesnay, denominated the *agricultural system* (see *Physiocratic System*), namely, that agricultural is the only productive sort of labor, since this affords a surplus (to wit, rent), after paying the laborer; whereas all other kinds only replace the value of the stock, and pay the wages. This theory is, however, entirely exploded; and, besides, it is of a kind not calculated to do any practical injury; for no nation would think of legislating upon the assumption that, because the raising of cattle, and thus producing hides, was, according to this doctrine, a productive labor, and that of tanning the hides and making the leather into shoes, was not productive, or left no net gain,—therefore the two latter branches might as well be discontinued.

These doctrines go to the general national industry and growth in wealth; others are partial in their application, of which we will notice a few that are adopted by those writers who are the most disposed to consider political economy a science. One of these doctrines, stated by Adam Smith, is, that the wages of common day labor finally fix at the point at which they barely afford the laborer the means of subsistence and of continuing the race of laborers. This is called by the followers of Adam Smith the "natural rate of wages." It is usually assumed in their writings as settled. But it is not pretended that the wages of labor are the same in the different countries of Europe and the U. States; on the contrary, it is every where taken for granted, that they are higher in some countries than in others. It would follow from this doctrine, that in those countries the necessary expense of supporting and reproducing the laborers, is in proportion to the wages paid in them respectively; whereas the fact is quite otherwise. And what entirely confutes the notion of any such "natural rate" of wages, is, that the rate varies in different kinds of labor, in which the expense of supporting, instructing and reproducing the laborers is apparently equal. The very statement of this doctrine presupposes a natural rate of expenditure for shelter, clothing and food for the laboring classes, a supposition which has no plausibility in theory and no support in fact. The doctrine of a natural rate of wages of the laboring classes is, indeed, entirely fanciful. It is very true that the present pecuniary interest of those who hire and those who are hired, is at variance, as well as that of those who buy and those who sell; and the party having the greatest advantage in either case, will, generally speaking, use it; and, accordingly, where the laborers are poor, thriftless and improvident, saving nothing, and being obliged to depend upon the earnings of the day for their food, they put themselves very much in the power of their employers. If to this be added a superfluity of laborers and a want of employment for all, the advantage of the employers is increased, and the laborers will accordingly be reduced to a lower and lower compensation, until, perhaps, at length, the wages paid will not more than supply them with the poorest fare and the meanest clothing and accommodations. But the degree to which they may be reduced by the operation of these causes, will evidently depend upon the situation of the country, the demand at successive times for labor, in comparison with the supply of laborers, and, most of all, upon the character of the laborers themselves. To say that there is some point at which these circumstances are naturally balanced, in all countries and all stages of economical improvement at which the "natural rate" of wages is graduated, seems to be a proposition too fanciful and vague to deserve the name of a theory. But such is the doctrine of the economists.

Another leading doctrine of Adam Smith and his followers grows out of the state of the English poor-laws. It is, that all provision by law for the support of the poor is useless and injurious. This doctrine is fortified by Mr. Malthus's theory of the fatal necessity of starvation. He maintains that human fecundity tends to get the start of the means of subsistence, since the former moves with a geometrically increasing rapidity, and soon leaves behind the latter, which can only proceed at a uniform arithmetical pace. The inference which he makes from this is, that the human race has been and will be kept down to its actual numbers by starvation. The consequence drawn from this proposition, which is stated with all the air of a demonstration, is, that poor-laws, or any efforts of charity, are only a childish and useless indulgence of feeling; for, since there will be superfluous numbers, who must at all events be starved, if the life of one is saved by charity, whether public or private, it is only that another may be starved in his stead. A more heart-hardening doctrine could not be broached. It is a conclusion at which humanity revolts, and to which no one will consent without compulsion. How, then, is the fact? The theorem requires that some millions should perish of want annually. It does not, however, appear that they do so perish. And yet this doctrine is reiterated, and very complacently inculcated, as a part of the *science* of political economy. (See *Pauperism.*)

A proposition, dwelt upon, at some length, by Mr. Say, and carefully inculcated in many other writers on the science of economy, is, that production is not *creation*; that a farmer cannot make corn, nor a weaver cloth, out of nothing. Mr. M'Culloch says labor is "the only source of wealth." This is one of the doctrines of the economists, from which consequences of some weight are deduced. Now all will, without doubt, agree that, without any materials, or, in other words, without the *earth*, men would not produce wealth; and it may be conceded also, for the purpose of the argument, that the earth, without inhabitants, would have no wealth. But men, being placed upon earth, may produce wealth by working upon the materials supplied by it; and the earth is itself sold in portions as a part of the common stock of wealth, and the men are also sometimes themselves bought and sold, as being a part of the same stock. In general, two things must concur in order to the production of value, namely, the thing to be wrought or used, and a person to work or use it. To insist that one or the other is the exclusive *source* of value, seems to savor more of the obsolete metaphysics of the schools, than of practical speculation. The utmost that can be made out of it, is a merely verbal distinction. And one would hardly expect so trivial a subtilty to occupy much space in a branch of knowledge holding the rank of a science.

All writers agree in the doctrine that security of property is essential to the accumulation of the products of labor, that is, wealth, for no one will save what he has no reasonable assurance that he shall enjoy; and it is also agreed by all, that accumulation, that is, a stock on hand, is necessary to the productiveness of labor.

Adam Smith lays great stress upon the division of labor as one of the causes of the great productiveness of industry. His remarks upon this subject are just, with the qualification, perhaps, that he over estimates the importance of the principle, since he attributes to it the improvements made in various processes of industry, whereas many of the improvements are themselves the causes, or, rather, afford the means of a separation of employments. Any machine is an illustration of this remark.

It is asserted by some of the writers on this science, that there are no limits to the beneficial effects of the accumulation of capital upon the productiveness of the industry of a nation; or, in other words, that a given number of people, however small, can advantageously employ any amount of capital, however great. But if we assume a certain number of employments and professions, there is certainly a limit beyond which no additional stock and materials could be employed. The proposition may mean that the ingenuity of men can, or will, find out modes of employing advantageously any amount of capital that can be accumulated by them. The proposition thus stated is, at least, a theoretical one, but the inquiries and investigations to which it leads, are certainly not sterile of useful results.

All the products of industry are divided among the persons by whom the taxes are received and consumed, the holders of sinecures, the capitalists, and the laborers, including in this latter class all the industrious in all professions and pursuits. A great problem in political economy is to determine the mode of distribution most advantageous to the nation; and this problem, which is very general and very complicated in its details, has not yet been fully solved. It is generally agreed, that all absolute sinecures, whether under the government or otherwise constituted, are prejudicial. What distribution among the usefully employed, or what comparative remuneration for the labor or services of the respective classes and professions, is the most advantageous, is a subject very little discussed by the writers on economy. But the question as to the distribution between the capitalists, who are entitled to profits, and those who labor upon or with the capital, who are entitled to wages, is a subject of considerable speculation in the books. One doctrine is, that, where profits are highest, accumulation will be most rapid; that is, the greater the mass of the annual products that go to those whose capital supplies the materials and instruments of labor, the more rapid will be the growth in wealth. This is assuming that nothing will be saved by the laborers, or not so much in proportion as will be saved out of the profits. The first assumption cannot be made, and the second is questionable; for example, a great proportion of the agricultural laborers by the month, in the U. States, are young men who save their wages in order to purchase a farm for themselves. There is no mode of saving that could be devised which would so rapidly promote the increase of the national stock, and a change whereby the farmers, by paying less wages, should themselves make greater profits, instead of augmenting the national accumulation, would very materially check it. Other instances might be given to the same effect. The doctrine, therefore, seems to be unsound. Taking the two divisions in the above distribution, it is evident that one cannot be increased but at the expense of the other. But there is one species of capital distinguished from all others, namely, that in land. The lower the rents are that are paid for the mere use of land, in exclusion of buildings and fixtures, the greater amount of annual products will be left to divide between those who supply the stock and those who perform the labor. It may, we think, be laid down as a sound maxim, that low rents, which leave a proportionally large amount of the annual income to be divided, as wages and profits, will very materially promote the national growth, by giving greater stimulus to labor and the employment of stock. This mode of distribution explains, in part, the fact that both the wages and profits are higher in the U. States than in Europe. By higher wages, we mean not merely the money price, but the greater quantity of similar articles that can be purchased for the wages of the same labor. So far, high profits and high wages are compatible; but, when the question is between wages and profits, as it is put by the economical writers, the preference of high profits at the expense of wages, seems not to be well founded as a general doctrine, though it may be true of Great Britain.

After disposing of the question, whether agricultural, manufacturing or commercial industry is most advantageous to a nation, and concluding, as all now agree, that they are equally conducive to national wealth, contrary to the opinion of Adam Smith, who gave the preference to agriculture, the writers on economy then go into the inquiry how far any one of these branches is objectionable on account of its effect on the character of the population. In this respect, foreign commerce is undoubtedly the most injurious of the three. As to manufacturing, its varieties are almost infinite, and no general remark is applicable to the effects of all upon the persons employed. It seems, indeed, to be now pretty well agreed, in the U. States, that the mode of conducting any branch of manufacture, and the system of educating and employing the operatives, determine the effects of the employment upon the character and habits of the population; and that it is not the necessary effect of this or that branch of manufacturing, to degrade and corrupt the persons employed in it. In this opinion the writers on economy generally agree.

The same writers agree generally in the definition of *value*, as being determined by the amount of marketable things, for which an article can be exchanged. It is also well settled that demand determines the market value; but they assert, again, or at least seem to imply, that value and cost are synonymous. They also generally imply, by the mode of using the term *cost*, that it is some definite, fixed quantity. This use of language throws great obscurity on their speculations on this subject, since the cost of producing an article varies from week to week, by the variation of the price of the materials, and the wages; and the same kind and quality of articles will, at the same time, cost one producer more than another. The proposition that cost regulates value, is laid down by the writers with great solemnity, and inculcated at great length. It is a subject on which there certainly is a great deal of unprofitable prolixity in the books; for what argument or illustration is necessary to establish the proposition, that men will not continue long to produce an article by which they lose money? The proposition seems to stand in quite as great need of an apology for stating it, as of a disquisition to explain or support it.

Mr. Ricardo's theory of rent is an ingredient in recent treatises on political economy. The result of his theory is, that, if there was no difference in the productive qualities of all the parts of the whole territory of a nation, there would be no such thing as rent. The conclusion of his theory is, that every additional bushel of corn raised in a country costs more than the preceding. Very few persons will probably assent to the first of these two propositions, and the last is absurd as applied to the U. States and many other countries. He doubtless had England in his view in framing his theory; but Mr. Lowe denies its accuracy in respect to England, as a matter of fact, upon the statement of cultivators themselves. Mr. M'Culloch goes into a consideration of the effect of the fluctuations of wages upon the cost of commodities, in order to establish the proposition that if the cost of the production of two articles depends upon the use of machinery, and the machinery for one is of short duration, and that for the other of long, then a rise in wages will affect the cost of the products of the transient machinery, more than that of the other. He discusses this proposition quite elaborately, for the purpose, apparently, of showing that an increase of wages will, in effect, result in a comparative enhancement of the profits of the producer who uses the durable machinery; for he has only to pay the advanced wages for working his machine, whereas the other must pay both for replacing and for working his. This is rather an obscure and nice distinction, and, to be just, requires that the price of the durable machine shall not have risen in value, in consequence of the increase of the expense of building a new one, by reason of the rise of wages; whereas it is according to common experience to suppose that it would rise in value, in which case Mr. M'Culloch's theory vanishes.

Passing over what relates to consumption (q. v.), the above are some of the leading doctrines and theories of what is called the science of political economy, as taught by recent writers in France and England; a science of which Adam Smith is said, by its professors, to be the founder. Perhaps no study of the day, which bears the name of science, presents more vague theory, grave, mysterious empiricism, dull prolixity, inconsequential arguments, gratuitous assumptions, jejune discussions, and elaborate triviality. There are many useful truths, which pass under the name of political economy; but a large proportion of the treatises, from that of Adam Smith downwards, by the disciples of his school, seem to bear the same relation to an intelligible practical developement of the causes and phenomena of national growth, wealth and decline, that alchemy does to modern chemistry.—For other branches of political economy, see the articles *Banks, Bounties, Circulating Medium, Commerce, Consumption, Corn Laws, Credit, Debtor and Creditor, Direct Tax, Laborers, Labor-saving Machines, Lotteries, Mercantile System, Money, Monopoly, Literary Property, Patent, Physiocratical System.* The following are some of the principal writers on political economy: 1. On the mercantile system: Stuart's Inquiry into the Principles of Political Economy (3 vols., London, 1767); Genovesi, *Lezioni di Commercio ossia d'Economia civile* (2 vols., Bassano, 1769); Büsch, *Abhandlung von dem Geldumlauf* (2 vols.; new edition, Hamburg, 1800). 2. On the physiocratic or agricultural system: Quesnay, *Tableau économique avec son Explication* (Versailles, 1758); this work was printed, with several others on the same system, in a collection edited by Dupont de Nemours, entitled *La Physiocratie* (6 vols., Yverdun, 1768); Turgot, *Recherches sur la Richesse et l'Origine des Richesses nationales* (Paris, 1774); Le Trosne, *De l'Ordre social* (Paris, 1777); Theodore Schmalz, *Staatswirthschaftslehre*

(2 vols., Berlin, 1818). 3. Adam Smith's system, as set forth by himself, and developed by his followers: Adam Smith's Inquiry into the Nature and Causes of the Wealth of Nations (2 vols., London, 1776; 4 vols., Edinburgh, 1814); Sartorius, *Von den Elementen des Nationalreichthums und von der Staatswirthschaft* (Göttingen, 1806); Lüder, *Ueber Nationalindustrie und Staatswirthschaft* (3 vols., Berlin, 1800); Say's *Traité d'Économie politique*; Ganilh's *Des Systèmes d'Économie politique* (2 vols., Paris, 1809 and 1822); Storch, *Cours d'Économie politique* (6 vols., Petersburg, 1815); and his *Betrachtungen über die Natur des Nationaleinkommens* (Halle, 1825); Sismondi's *Nouveaux Principes d'Economie politique* (2 vols., Paris, 1818); Ricardo, On the Principles of Political Economy and Taxation (new edition, London, 1819); Malthus's Principles of Political Economy (London, 1820); Jakob, *Grundsätze der Nationalökonomie* (Halle, 1805 and 1825); Soden, *Nationalökonomie* (9 vols., Leipsic, Arau and Nuremberg, 1805—24); Whately's Introd. Lect. on Polit. Econ. (1831); Senior's Lectures on Population (1831); Sadler, Law of Population (anti-Malthusian) (vols. i and ii, 1830); Cooper's Lectures on the Elements of Polit. Econ. (Columbia, 1826); Cardozo's Notes on Polit. Econ. (Charleston, 1826); Thoughts on Polit. Econ. by D. Raymond (Baltimore, 1820).

Political Institutions. The origin of political societies and institutions has been a frequent subject of disquisition. Like many other things, they are supported from an instinctive feeling of their necessity, though their origin and true principles may not be correctly understood. The universal feeling of their necessity has induced some persons to compare political institutions to languages; both, they say, are essential to the existence of mankind; both exist from time immemorial, and neither can be changed at will;—a comparison which tends, like other partial analogies, to lead the inquirer into error. The theories of the origin of the state may be comprised under two heads—those which make *authority* the starting point, and those which seek it in *equality*. Those who support the former principle are again divided; some recur at once to God, and say, that he united all power in the hands of the father of the family, who, therefore, at first, had the priestly and princely, as well as the paternal authority; and it was only in later times that these functions became separated; but it is idle, in scientific speculation, to refer positive institutions to God. He implanted the principles of every thing good, but we are not to take for granted a direct interference, on his part, in their application. Other advocates of authority place the origin of political institutions in force. Mr. von Haller started this idea anew. (See the article *Haller, Charles Louis von.*) We have already spoken of the mistake of laying much stress upon the supposed origin of bodies politic, in the article *Estates* (vol. iv, note on p. 585). What did Mozart, in composing his Requiem, care for the origin of music? or Ariosto, or Milton, for the origin of languages? Political institutions may have originated in a variety of ways, from force, compact, reverence, &c.; and they actually have, as history shows us. But their accidental origin does not show the principle which lies at their foundation, holds them together, and is understood more clearly with the improvement of the social order. The accidental origin of the hut of the savage does not teach us the principles of architecture. These are gradually unfolded, in proportion as the art advances. The principle which lies at the basis of all political union we hold to be the idea of the just, as that of the good is the foundation of morals, and that of the beautiful of the fine arts. The idea of the just, again, in politics is but a modification of the idea of equality. This is the animating principle of all political societies, whatever may have been their origin, and is invariably developed in the progress of society, as the flower is the product of the perfect plant. The idea of force declines as this principle is unfolded. We might add, that the idea of the just is at least as ancient as that of paternal authority; because, as soon as two individuals are placed together, the idea of equal rights arises, the idea of "doing as one would be done by." Still more is this the case in a family, because as soon as there are several children, parents as well as children feel that it is not right to prohibit to one of the children what, in the same case, would be allowed to another. That children obey their parents originally from a mere feeling of inferiority, may be allowed; but states consist of men, and little would the remembrance of former inferiority avail for the maintenance of social order. The idea of the state and of law (for both go hand in hand, and the essence of law is equality, even where it establishes differences and privileges) has a much surer foundation in the idea of the just, which is as primitive an idea as that of the good. Whether, therefore, all bodies politic were originally founded upon the social compact or not, this social compact is the fundamental idea of all, and that to which all strive in the progress of their developement. (See our article *Estates* for the various stages of political government; see, also, *Constitution*, and *Sovereignty*.)

POLITICS, in its widest extent, is both the science and the art of government, or the science whose subject is the regulation of man, in all his relations as the member of a state, and the application of this science. In other words, it is the theory and the practice of obtaining the ends of civil society as perfectly as possible. In common parlance, we understand by the *politics* of a country the course of its government, more particularly as respects its relations with foreign nations; and the more important these relations are (as, for instance, in European states, which exert so powerful an influence on each other), the more prominent is the place which they hold in the ideas conveyed by the word; whilst in a country like the U. States, whose relations to foreign countries are comparatively unimportant, the word, in common usage, is naturally more confined to the principles and operation of the internal government. Politics, therefore, extends to every thing which is the subject of positive laws; for it is by means of these that the purposes of a state or civil union are effected. The political relations of men have therefore always been the engrossing subject of history. (See the definition of *history*, at the beginning of the article on it.) As the idea of *politics* depends upon that of *state*, a definition of the latter will easily mark out the whole province of the political sciences. By *state* we understand a society formed by men, with the view of better obtaining the ends of life by a union of powers and mutual assistance. This idea of state is the basis of a class of sciences, and gives them as distinct a character as belongs to the various classes of historical, philosophical, theological, medical, &c., sciences. The political sciences are divisible into the *abstract*, or purely philosophical, and the *historical* and *practical*. This, however, is not the best order for studying them. The following order may, perhaps, be adapted to the wants of the scientific student:—1. *Natural law*, which treats of the rights and duties of men in the absence of all positive regulations. As the idea of law and the mutual obligations of men is closely connected with that of the state or government, the philosophy of government enters, in some degree, into this science, so that the various views of the origin of governments, whether they are to be considered as founded essentially on compact or force, or as having a divine origin, &c., fall under natural law. The subject of *natural law* is treated at considerable length in the article on that subject, in our ninth volume, to which we refer the reader; also to the article *Haller*, as he gives a peculiar turn to the old notion of divine right.—For the various theories of natural law, see the works of Hugo Grotius, *De Jure Belli et Pacis* (Paris, 1625), which belongs, however, more properly to the practical law of nations; Puffendorf, *Elementa Jurisprudentiæ universalis*; Wolf, *Jus Naturæ, Methodo scientifica pertractatum* (8 vols., Halle, 1740—49, 4to.); Montesquieu's *Esprit des Lois*; Rutherforth's Institutes of Natural Law; Ferguson on Civil Society; also the works on government by Filmer, Locke, Mackenzie, Algernon Sidney, Hume, Milton, and a host of modern writers.—2. Though the theory of government falls, in some degree, under natural law, yet the full treatment of so extended a subject gives rise to a separate branch of science, which we might call *abstract* or *theoretical politics*. This department treats of the object of the state, and the relation between the state and the individual; of the right to prescribe laws, and to punish; of fundamental laws and compacts; of the various forms of governments—monarchies and republics, aristocracies, democracies, representative systems, &c.; of the division of powers, legislative, judiciary, executive; of the means of obtaining the true ends of the state; of the relations between different political societies, &c.; and of the whole subject of criminal law (q. v.), philosophically considered. Among the most important authors on these subjects are Plato, Aristotle, Cicero, among the ancients; Macchiavelli, *Il Principe*, with Frederic the Great's *Antimacchiavelli* (1741), and that by Jakob (1794); Hubert Languet (under the assumed name of Stephanus Junius Brutus), *Vindiciæ contra Tyrannos* (Soleure, 1577); Mariana, *De Rege et Regis Institutione* (see *Mariana*); Hobbes, *De Cive*, and *Leviathan, seu de Materia, Forma et Potestate Civitatis* (see *Hobbes*); Locke, Two Treatises of Government (see *Locke*); Rousseau, *Contrat Social*; Chr. von Wolf, *De Jure Civitatis* (Halle, 1748); Aug. Schlözer, *Allgemeines Staatsrecht und Staatsverfassungslehre* (Göttingen, 1793); Von Haller (q. v.); Zachariä, *Vierzig Bücher vom Staate* (Tubingen, 1820, et seq.); Salmasius, *Defensio pro Carolo I* and Milton's answer to him, *Defensio pro Populo Anglicano;* and Milton's Tenure of Kings and Magistrates, his Ready and Easy Way to establish a Free Commonwealth. Among the writers who have treated *criminal law* philosophically are Beccaria, *Dei Delitti e delle Pene* (Naples, 1764); Feuerbach, *Revision der Grundsätze und Grundbegriffe des positiven peinlichen Rechts* (2 vols., Erfurth, 1799), and his *Lehrbuch des peinlichen Rechts* (9th ed., Giessen, 1820); Grolman (q. v.), Tittman, Henke.—3. *Political economy*, which treats of the resources of national wealth, and the circumstances which affect it advantageously and disadvantageously. (See *Political Economy.*) The Germans give the name of *national economy* to what is generally comprised, with us, under political economy. Under *state economy* they include the management of the finances, and the regulations by which the government influences the wealth of the state. Under this latter branch, they treat of taxes, monopolies, loans, imports, exports, &c. —4 *Science of police.* (See *Police.*)—5. *Practical politics*, or the art of administering the government of states, both in regard to their internal and external relations. This branch tests the principles of political institutions, whether liberal or despotic, whether advocated by the holy alliance or by the friends of freedom.—6. *History of politics.* This traces the variety of civil governments; the causes of their rise and decay; how one grew out of the other; how they underwent fundamental changes, from the patriarchal form, in which religious institutions, civil government and family relations were rudely mixed, to the theocratic, in which the two former were blended; to military monarchies, after the separation of the military power from the priesthood; to democracies or aristocratic republics; to feudalism; to aristocratic constitutional monarchies; to representative aristocratico-democratic governments; and, at last, to democratic representative governments. The enumeration of the works necessary to the student of this branch, would far exceed our limits.—7. *History of the European and American systems of states*, as forming each a family of members under constant and intimate mutual influence. In as far as the relations of the members of these families can be learned from treaties of peace, &c., there exist very valuable materials—collections of documents by Du Mont, Rousset, Wenk, Von Martens, Koch, Schöll, Isambert, &c. The first attempt to treat this branch systematically was by J. Jac. Schmauss, in his Introduction to Politics (in German), and commentaries on the *Corpus Juris Gentium Academici* (2 vols., Leipsic, 1741), edited by him. Koch wrote an *Abrégé de l'Histoire des Traités de Paix entre les Puissances de l'Europe depuis la Paix de Westphalie* (4 vols., Basil, 1796; a new edition in 15 vols., by Fr. Schöll, Paris, 1817). George Fr. von Martens wrote a Sketch of a Diplomatic History of the European Political Negotiations and Treaties, from the End of the fifteenth Century to the Peace of Amiens (in German, Berlin, 1807). Heeren wrote a Manual of the History of the European System of States (fourth edition, Göttingen, 1822); and Pölitz, Political Sciences (3d vol.); both in German. —8. *Statistics*, or a knowledge of the actual condition, resources, &c. of states. The term was first used by the Germans.—9. *Positive, public and constitutional law* This branch gives a scientific representation of the fundamental laws and constitutions of the various European and American states. Materials for this branch are found in Lacroix, *Constitutions des principaux États de l'Europe et des États-Unis de l'Amerique* (third edition, Paris, 1802); George Fr. von Marten's Collection of the most Important Fundamental Laws (in German); Pölitz, the Constitutions of the European States, during the twenty-five last Years (4 vols., Leipsic, 1817—1825, in German); Lüder's Diplomatic Archives for Europe (3 vols., Leipsic, 1819—1823, in German); *Archives Diplomatiques pour l'Histoire du Temps et des États* (6 vols., Stuttgard, 1821—1825); and its continuation—*Neueste Staatsacten und Urkunden* (11 vols., Stuttg., 1825 seq.); Dufau, Duvergier and Guadet, *Collection des Constitutions, Chartes et Lois fondamentales des Peuples de l'Europe et des deux Amériques* (6 vols., Paris, 1821—23); Alb. Fritot, *Science du Publiciste* (11 vols., Paris, 1820—1823).—10. *Practical law of nations*, containing the scientific exposition of the principles adopted by modern civilized nations for the regulation of their mutual relations in peace and in war. To this belong the rights and duties of neutrals and belligerents, the rules relating to prizes (see *Prize*), prisoners, blockade, conquest (q. v.), &c. The rules of national law are not drawn up in a code, but are merely the principles which have developed themselves within the last 300 years. (See *Nations, Law of.*) J. Jac. Moser was the first who treated the practical law of nations separately from the theoretical, in his Attempt at a Sketch of the modern European Law of Nations in Times of Peace and War (in German, 10 vols., Frankfort on the Maine, 1777). See, also, Vattel, *Le Droit des Gens* (3 vols., recent edition, Paris, 1820); George Fr. von Martens, *Précis du Droit des Gens moderne de l'Europe;* and Charles Martens, *Causes célèbres du Droit des Gens.* The Germans have numerous recent works in this branch of science.—11. *Diplomacy.* (See *Diplomacy.*)—12. *Political practice* embraces whatever is necessary for the conduct of public affairs. In some European governments, in which all business is transacted by means of writings drawn up with various formalities, the wording, &c. of these writings forms a subject of study, and various works have been written on the *chancery style,* so called ; and in all governments, the study of a diplomatic style, and of the mode of transacting diplomatic business, belongs to it. See *Cours de Style Diplomatique* (2 vols., Dresden, 1823). The knowledge of parliamentary rules, the duties of committees, and all the forms usual in the administration of public business, fall under the head of political practice in representative governments.

Pőlitz, Charles Henry Louis, a distinguished German writer, professor of politics in the university of Leipsic, was born at Ernsthal, in 1772, and educated at Chemnitz. In 1791, he studied at Leipsic, in 1794, obtained the right of lecturing there, and, in 1803, was appointed extraordinary professor of philosophy. His numerous works on education, criticism, history, politics, and the German language, are much esteemed in Germany. Among them are his *Weltgeschichte* (Universal History, 5th ed., 1825, 4 vols.); *Kleine Weltgeschichte* (5th ed., 1825); *Die Staatensysteme Europas und Amerikas seit* 1783 (1827); *Die Staatswissenschaften im Lichte unserer Zeit* (5 vols., 1824; 2d ed. 1827 seq.; also, as an academical text-book, in 1825); *Das Gesammtgebiet der deutschen Sprache* (4 vols., 1825), with histories of several German states, &c. His Manuals of German Prose and of German Poetry also deserve notice. Since 1828, Pőlitz has edited the *Jahrbücher der Geschichte und Staatskunst.*

Poll-Tax. (See *Tax.*)

Pollux. (See *Castor.*)

Pollux, Julius, was born in Egypt, in the latter part of the second century. He devoted himself early to letters, and settled at Athens, where he read lectures on ethics and eloquence. He became preceptor to the emperor Commodus, for whose use he drew up the catalogue of Greek synonymes in ten books, under the name of *Onomasticon,* the best edition of which is that of Amsterdam (1706, folio), by Wetstein. He died A. D. 238.

Pőlnitz, Charles Louis, baron von, born in 1692, early displayed marks of talent, and travelled through Europe. Of his travels he gave an amusing account in his *Lettres et Mémoires* (ostensibly at Amsterdam, 1727). He was also the author of *L'État de Saxe sous Auguste III* (1734), and of the well-known *Saxe Galante;* the *Histoire de la Duchesse d'Hanovre* (wife of George I) is attributed to him. After his death (1775), appeared his *Mémoires sur les Quatre derniers Souverains de la Maison de Brandenbourg* (1791).

Polo, Giles (commonly called *Gil Polo*); a Spanish poet, born at Valencia in 1517. His inclination for poetry led him to abandon the profession of law, and his first works placed him among the best Spanish poets of his time. His reputation was established by his *Diana Enamorada,* a pastoral romance, partly in prose and partly in verse, intended as a continuation of the *Diana* of Montemayor. (q. v.) In invention, Gil Polo is not inferior to his predecessor, whom he surpasses in purity of style, and in the harmony and brilliancy of his verse. He died in 1572. Cervantes excepts the *Diana* of Gil Polo from his list of works condemned to be burnt.

Polo, Marco, a celebrated traveller of the thirteenth century, was the son of Nicolas Polo, a Venetian merchant, who, accompanied by his brother Matthew, had penetrated to the court of Kublai, the great khan of the Tartars. This prince, being highly entertained with their account of Europe, made them his ambassadors to the pope ; on which they travelled back to Rome, and, with two missionaries, once more visited Tartary, accompanied by the young Marco, who became a great favorite with the khan. Having acquired the different dialects of Tartary, he was employed on various embassies ; and, after a residence of seventeen years, all the three Venetians returned to their own country in 1295, with immense wealth. Marco afterwards served his country at sea against the Genoese, and, being taken prisoner, remained many years in confinement, the tedium of which he beguiled by composing the history of the travels of his father and himself, under the title of *Delle Maraviglie del Mondo da lui vedute,* &c., the first edition of which appeared at Venice in 1496 (8vo.). It has been translated into various languages, the best versions of which are one in Latin (Cologne, 1671), and another in French, published at the Hague in 1675, in two volumes. Polo relates many incredible things, but the greater part of his narrative has been verified by succeeding travellers, and it is thought that what he wrote from his own knowledge is both curious and true. He not only gave a better account of China than any previously afforded, but likewise furnished an account of Japan, of several islands in the East Indies, of Madagascar, and of the coast of Africa. He ultimately regained his liberty; but of his subsequent history nothing is known.

Polonaise is a Polish national dance, which has been imitated, but with much variation, by other nations; also the tune to which it is danced.—The *Polonaise*, in music, is a movement of three crotchets in a bar, characterized by having every rhythmical cæsura not on the first, but the last crotchet of the bar. The Polonaise is generally written in two strains, and its movement, though majestic, is smooth and fluent.

Poltava; celebrated for the defeat of Charles XII. (See *Pultawa.*)

Polyænus; a Greek writer, who flourished in the second century. He appears to have been by birth a Macedonian, and is principally known as the author of a work on military tactics entitled *Stratagemata*. Isaac Casaubon published an edition of it, which was reprinted at Leyden in 1690, with improvements. There is an English translation of it by Shepherd (4to., 1793).

Polyandria (from πολυς, many, and ανηρ, a man) denotes the custom of one woman having several husbands,—a custom found with some uncivilized tribes. (For the meaning of the term in botany, see *Plants*.)

Polyarchy (from πολυς, many, and αρχη, government) is sometimes used to denote any form of government in which many rule, whether it be an aristocracy or a democracy, in contradistinction to *monarchy*, in which one rules.

Polybius, a Greek historian, was born at Megalopolis, in Arcadia, about 203 B. C. His father, Lycortas, was one of the leaders of the Achæan league, and the confidential friend of Philopœmen. Educated for arms and political life, he was sent, at the age of twenty-four years, as a member of an embassy to Ptolemy Epiphanes. When the war between Perseus, king of Macedonia, and the Romans, broke out, Polybius was sent to the Roman consul Marcius to inform him of the resolution of the Achæans to join him with their forces. He remained some time in the Roman camp, and then returned with a commission from Marcius to oppose the demand made by the commander Appius for more auxiliary troops to be sent to Epirus. About this time, the design of the Romans to make all the free states of Greece dependent became evident, and Polybius took part in all the measures for the preservation of their independence. When, therefore, after the subjugation of Perseus, the Romans used less disguise, Polybius found himself among the 1000 hostages whom the Achæans were obliged to deliver up to the Romans. His learning, virtues and talents soon gained him the favor of some of the most distinguished senators, especially the two sons of Paulus Æmilius. The hostages were not dismissed until seventeen years had elapsed, when Polybius, who did not wish to see again his degraded country, remained in Rome, and entered into the service of Scipio Æmilianus. He accompanied him on his expedition to Africa, and proved a very useful counsellor to him. When the Achæans became involved in a war with the Romans, he hastened to the army of the consul Mummius to mitigate the fate of his countrymen. He was a witness of the destruction of Corinth, and of the change of Achaia into a Roman province. Amid these melancholy occurrences he preserved his patriotism and disinterestedness. He executed, to the satisfaction of both parties, the Romans and Greeks, the difficult commission of introducing the new form of government in the cities of Greece. The people of Achaia erected statues to him, one of which has this inscription:—"To the memory of Polybius, whose counsel, had it been followed, would have saved Achaia, and who consoled it in its adversity." He attended Scipio to the siege of Numantia, but, after the death of his great friend and benefactor, he returned to his native land, where he died in consequence of a fall from a horse, B. C. 121, aged eighty-two years. Polybius is the author of a historical work from the beginning of the second Punic war to the overthrow of the Macedonian empire (fifty-three years). It consists of thirty-eight books, besides two introductory books, containing a sketch of the Roman history from the taking of Rome by the Gauls. Although the affairs of Rome are the chief subject, contemporary occurrences in other countries are also related, on which account Polybius gave it the title of a universal history (ιστορια καθολικη). We have of this great work only the five first books entire, and valuable fragments of the twelve following, together with the politics of Polybius, taken from the history of Constantine Porphyrogenitus, and examples of virtues and vices. The loss of the rest is very much to be regretted, as, in accuracy and fidelity of narration, and in extent of political and military knowledge, Polybius is surpassed by no historian of antiquity. To him is also attributed the introduction of didactic politics into history—that is, of that manner of writing history which, by intermingling views of the causes, occasions and effects of events, is a useful introduction to politics (πραγματα). On the other hand, his style is destitute of beauty, and can be read only for the matter. Livy has sometimes copied him. Cicero mentions a particular work of his on the Numantian war. The most valuable editions of Polybius are those of Casaubon (Paris, 1609), of Jac. Gronovius (Amsterdam, 1670, 3 vols.), republished by J. A. Ernesti, with Casaubon's Latin translation and a commentary (1764), and that of Schweighäuser (Leipsic, 1789 to 1793, 9 vols.). The history of Polybius has been well translated into English by Hampton.

Polycarp, according to tradition, a disciple of the apostle John, and one of the earliest bishops of Smyrna, finally defended the Christian faith, in the year 169, under torture, in being put to death during the persecution of the Christians under Marcus Aurelius. The people destined him to the wild beasts, but the judges condemned him to the flames. These, however, according to the legend, played harmlessly around him, in the shape of a swelling sail, and emitting a sweet fragrance. Seeing his body to be proof against the flames, the judges ordered one of the executioners to run him through with a sword. A white pigeon suddenly flew up, and the flames were extinguished by the blood that flowed from the wound. Thus Christianity had changed the heathen eagle which bore the soul of the Roman emperors to their kindred gods into an innocent dove; and a miracle was then performed, which was afterwards repeated at the funeral pile of the maid of Orleans. The Roman church consecrates the twenty-sixth of January to the memory of Polycarp. His Epistle to the Philippians is the only one of his pieces which has been preserved.

Polycletus of Sicyon, about 430 B. C., one of the most celebrated Grecian sculptors, was a scholar of Agelades, and a rival of Phidias, to whom, however, he was inferior in fire and nobleness of conception. He was an architect, as well as Phidias, but excelled chiefly as a statuary in bronze. His principal merit is elegance. He devoted himself principally to youthful gymnastic figures and figures of females. Polycletus created the ideal of a youthful figure. (See *Sculpture*, and *Sculptors of the Ancients*.) He executed all the graceful attitudes of the gymnastics of youth. In the Doryphorus, he seems to have intended to exhibit a model or a canon. (See Winckelmann's works, 6th vol.) He is also said to have written a work on proportions. He made the Argive Juno of a colossal form, as if for a counterpart to Phidias's Jupiter, in ivory and gold, unveiled, with a crown of gold on her head, and a large arched eye, holding a sceptre, with a cuckoo in her left hand, and in her right, which was extended, a pomegranate. Polycletus also made small bronze figures, beautiful vessels and lamps. There are other artists of the same name.

Polycrates; ruler of Samos during the time of the elder Cyrus and Pythagoras. The Samians had till then been free, but he made himself master of the government by violence, and endeavored to secure his power by every means, even by an alliance with the Egyptian king Amasis. His extraordinary success in all his undertakings induced Amasis, as Herodotus says, to admonish him to avert greater calamities by some voluntary sacrifice. Polycrates followed this advice, and cast his most valued jewel, a precious signet ring, into the sea, which was, however, found a few days after in the maw of a fish that had been sent to him as a present, on account of its remarkable size. This induced Amasis to renounce his alliance. In fact, to use the language of the ancients, Nemesis at last punished the arrogance of Polycrates in a dreadful manner. When he was on the point of making himself lord of all Ionia and the neighboring islands, the Persian satrap Orontes, who considered himself injured by him, treacherously invited him to his palace, and crucified him, B. C. 522. Polycrates seems to have had much taste for learning and the arts, and greatly promoted the refinement of the Samians. Anacreon, his favorite, and the celebrator of his fame, lived at his court.

Polydectes. (See *Perseus*.)

Polygamy consists in a man's having more than one wife, or a woman's having more than one husband, at the same time. It was common among the barbarous nations of antiquity, with the exception of the Germans, who, as Tacitus observes, *prope soli barbarorum singulis uxoribus contenti sunt.* Among the ancient Britons, there was a singular kind of polygamy. Any number of men joined in a society together, as was perhaps requisite for mutual defence. In order to link this society closer, they took an equal number of wives in common, and whatever children were born were reputed to belong to all of them, and were accordingly provided for by the whole community. The ancient Medes compelled the citizens of one province to take each seven wives, and the women in another to have each five husbands, according as war had made extraordinary havoc in one quarter of their country among the men, or the women had been carried away by an enemy from another. Polygamy was also permitted among the ancient Greeks, when necessity seemed to require it, as in the case of the detachment of young men from the army of Lacedæmon, mentioned by Plutarch. It was also allowed among the Tuscans (12 *Athen.* 3). It was also defended by Euripides and by Plato, whose doctrine was rather a community of wives than a plurality. The ancient Romans never practised polygamy, though it was not forbidden among them; and Mark Antony is mentioned as the first who took the liberty of having two wives. From that time it became frequent in the Roman empire, till the reigns of Theodosius, Honorius and Arcadius, who prohibited it A. D. 393. After this, Valentinian permitted all his subjects to marry several wives, if they pleased; nor does it appear, from the ecclesiastical history of the times, that the bishops made any opposition to the introduction of polygamy. It did not, however, continue long. Polygamy prevailed among the Jewish patriarchs, both before and under the Mosaic law, though it has been doubted whether that law permitted simultaneous plurality of wives (*Deut.* c. xxi, v. 15). But the state of manners had probably become reformed in this respect before the time of Christ; for, in the New Testament, we meet no trace of its practice. In the Christian code, there is no express law upon the subject. The words of Christ, however, in Matthew, c. xix, v. 9, may be construed, by an easy implication, to prohibit polygamy; for if "Whoever putteth away his wife, and marrieth another, committeth adultery," he who marrieth another, without putting away the first, is no less guilty of adultery; because the adultery does not consist in the repudiation of the first wife, but in entering into a second marriage during the legal existence of the first. The passages in St. Paul's writings which speak of marriage always suppose it to signify the union of one man with one woman. But, however this may be, polygamy has been as entirely disused, and universally prohibited in all Christian countries, as if Christianity had expressly forbidden it. Polygamy has been allowed under all the religions which have prevailed in Asia. By the laws of Mohammed, every Mussulman is permitted to have a plurality of wives. The Arabs, however, seldom avail themselves of this privilege. In England, originally, the offence of polygamy was considered as of ecclesiastical cognizance only; and, although a statute of Edward I treated it as a capital crime, it appears still to have been of doubtful temporal cognizance until the statute of James I, c. 11, enacted that persons guilty of polygamy should suffer death, as in cases of felony; but the benefit of clergy was not thereby taken away. By the statute 33 George III, c. 67, polygamy is punishable with transportation for seven years, or imprisonment. In the U. States, the punishment is generally imprisonment for a longer or shorter period, fine, &c. By a constitution of Charles V it was a capital crime, and, by the laws of ancient and modern Sweden, it is punished with death. By the Prussian code of 1794, polygamy is punishable by confinement in a house of correction or fort, for at least one and not more than two years. The practice of polygamy has been defended by several authors in modern times. Montesquieu affirms that it is physically conformable to the climate of Asia. He has also suggested that the irregularity in the comparative number of each sex born in Asia, which is represented to be greatly superior on the part of the female side, is also an argument in favor of this practice; but there is good reason for denying the reality of this supposed inequality. In the year 1780, the reverend Mr. Madan published his *Thelypthora*, in which he attempted to vindicate polygamy, and proposed the introduction of licensed polygamy, in case of female seduction, as a remedy for prostitution. He was ably answered by a writer in the Monthly Review, vol. 63, p. 328.

Polyglot (from πολυς, many, and γλωττα, language); a work which contains the same matter in several languages. It is more particularly used to denote a copy of the Holy Scriptures, in which two, three or more translations are given, with or without the original. Polyglots are of great service for the understanding the Scriptures, and were early undertaken by theologians. The first great work of the sort is the Complutensian Polyglot, prepared by several learned men, under the patronage of cardinal Ximenes. Great care and pains were taken in procuring early manuscripts of the text and of the translations. It was splendidly printed (1514—17), in six folio volumes, at Alcala de Henares (q. v.), in Latin, *Complutum*, whence its name. It contains the Hebrew text of the Old Testament, with the Vulgate, the Septuagint, a literal Latin translation, a Chaldee paraphrase (which is also accompanied by a Latin translation). Another celebrated polyglot is that of Antwerp, called the *Royal Bible*, because Philip II of Spain bore part of the cost of publication. It was conducted by the learned Spanish theologian, Benedict Arias Montanus, who was assisted by other scholars. It appeared at Antwerp, in eight folio volumes (1569—72), and, besides the Hebrew text, contains the Latin Vulgate, the Septuagint (with a literal Latin translation), several Chaldaic paraphrases (Targums), also accompanied by a Latin translation, and the New Testament in the original Greek, with the Latin Vulgate, and a Syriac translation in Hebrew and Syriac letters (also with a Latin translation). Still more celebrated is the Paris polyglot, executed principally under the direction of Gui Michael le Jay (an advocate to the parliament, who expended his whole fortune on the object), by several distinguished Orientalists and critics. It appeared in 1645, in ten folio volumes, and contains, in addition to the contents of the Antwerp polyglot, a Syriac and an Arabic translation (with Latin), and also the Samaritan pentateuch (a Samaritan text, with a translation), and likewise an Arabic translation of the New Testament, with a Latin translation of the same. Finally, the London or Walton's polyglot, in ten languages, appeared in six volumes folio, with two supplementary volumes (London, 1654—57). It was conducted under the care of Bryan Walton (q. v.), afterwards bishop of Chester, and contains all that is in the Paris polyglot, but with many additions and improvements. It contains the original text according to several copies, with an Ethiopic and a Persian translation, and the Latin versions of each. Cromwell patronised the undertaking. Besides these four great polyglots, there are several of parts of the Bible, particularly of the Psalms.

Polygnotus of Thasus, one of the most distinguished Greek painters, flourished from 450 to 410 B. C., embellished Athens with his pencil, and was rewarded with the citizenship. Cimon, the demagogue, and rival of Pericles, employed him to decorate the Pœcile. He was also the favored lover of the beautiful Elpinice, sister of Cimon. Micon and Panænus assisted him in painting the Pœcile. His two principal pictures there represented the Greeks before Troy; the subject of one of them was the assembly of the chiefs after the rape of Cassandra; of the other, the captive Trojan females, in the midst of whom was Cassandra. In the *Lesche* (hall), at Delphi, he painted the Conquest of Troy and the Regions of the Dead, which are described by Pausanias. In a portico of the Parthenon there were also several easel-pieces, relating to the Trojan war. In the temple of Castor and Pollux was a painting representing the abduction and marriage of the daughters of Leucippus, and in the propylæa were several pictures. His works were probably on wood. Polygnotus is represented as being the first who made painting independent of sculpture, and gave life, motion, character and expression (whence his surname ἠθογραφος) to the countenance, skilful disposition to the drapery, and proportion to the figures, and he is said to have been the first who painted *tetrachromes* (pictures with four colors). With him began the grand and lofty style in Greek painting.

Polyhalite; the name of a mineral species, bestowed in allusion to the many salts which it contains. It occurs in coarsely fibrous masses of a reddish white color, and a pearly lustre; specific gravity 2.77; hardness not much above that of gypsum. Its constituents are as follows:—

Hydrous sulphate of lime	28.25
Anhydrous do.	22.42
Anhydrous sulphate of magnesia . .	20.03
Sulphate of potash	27.07
Muriate of soda	.19
Red oxide of iron	.34

It occurs in the salt mines of Ischel, in Upper Austria.

Polyhedron, or Polyedron; a body or solid contained by many rectilinear planes or sides. When the sides of the polyhedron are regular polygons, all similar and equal, then the polyhedron becomes a regular body, and may be inscribed in a sphere; that is, a sphere may be described about it, so that its surface shall touch all the angles or corners of the solid. There are but five of these regular bodies, viz. the *tetrahedron*, the *hexahedron* or cube, the *octahedron*, the *dodecahedron*, and the *icosahedron*.

Polyhistor (from πολυς, much, and ιστωρ, knowing); a scholar who is acquainted with all the chief branches of science. Formerly it was possible to be well versed, at the same time, in law, theology, medicine, &c. (as in the case of Leibnitz, and several scholars of eminence before him.) In the present advanced state of science, it is impossible to be a *polyhistor* without the sacrifice of thoroughness. *Polyhistor* is also used for a scholar, who, besides his peculiar branch, has a general knowledge of most others. (See *Morhof*.)

Polyhymnia, or **Polymnia**; according to the later poets, the muse of lyric song or of music, to whom is attributed the invention of mimes and pantomimes. The Grecian artists represented her covered with a veil, and in a meditating posture. Her attributes are the lyre and the plectrum. She places the forefinger of her right hand on her mouth, or holds a scroll.

Polymignite; the name of a mineral recently found in Norway. It is black, brilliant, and crystallized in small prisms, long, thin, with rectangular bases, the edges of which are commonly replaced by one or several planes. Specific gravity, 4.806. It scratches glass. Fracture conchoidal, without indications of cleavage; lustre semi-metallic. Alone, before the blow-pipe, it undergoes no change, but melts easily with borax. Its composition is as follows:—

Titanic acid	46.3
Zirconia	14.4
Oxide of iron	12.2
Lime	4.2
Oxide of manganese	2.7
Oxide of cerium	5.
Yttria	11.5
Traces of magnesia, potash, silex and oxide of tin	96.3

It is found in the zircon sienite at Fredericksvœrn.

Polynesia (from πολυς, many, and νησος, island); the name given by geographers to the great body of islands scattered over the Pacific ocean, between Australasia and the Philippines, and the American continent. It extends from lat. 35° N. to 50° S.; and from lon. 170° to 230° E., an extent of 5000 miles from north to south, and of 3600 from west to east. It includes, therefore, the Sandwich islands, the Marquesas, Navigator's, Society, Mulgrave, Friendly, Ladrone, and Pelew isles, the Carolines, Pitcairn's island, &c. (*See these articles*, and also *Australia*, *Oceanica*, and *Pacific Ocean*.)

Polynices. (See *Eteocles*, and *Thebes*.)

Polyphemus, son of Neptune, the most famous of the Sicilian Cyclops (q. v.), is described by Ulysses (*Odyssey*, ix), as a giant, living by himself in a cave, and feeding his flocks. Ulysses (q. v.) and his companions, having unwarily taken refuge in his cave, were found there by Polyphemus, when he returned home at night, and shut up the mouth of the cavern with a large stone. Having seized two of the strangers, he ate them for supper, and the next morning made a breakfast of two more of them, after which he drove out his flocks to pasture, and shut up the unhappy captives by closing the entrance of his cave. Ulysses then contrived a plan for their escape. Having sharpened the club of the Cyclops, he intoxicated the monster with wine, and, as soon as he fell asleep, bored out his eye. He then tied himself and his companions under the bellies of the sheep, in which manner they passed safely out in the morning. Polyphemus was the lover of the nymph Galatea, but the nymph despised his offers, and preferred Acis, who was killed by his jealous rival. (See *Galatea*.)

Polypi, in natural history; a numerous order of animals of the class of zoophytes, or animal plants, forming the transition from the animal to the vegetable kingdom. (See the article *Animal*, in which the five zoophyte orders are described under the head *Radiated*.) These singular animals were first described by Trembley, in his *Mémoires sur les Polypes* (printed at Leyden, 1744). The unpractised eye easily overlooks these animalcules, as they consist merely of a semitransparent jelly and, when disturbed, contract themselves into a shapeless lump. They are to be found from the beginning of the warm weather, through summer, in pools, and slowly running waters, attached to plants, snails, &c. When the sun is very warm, little, transparent, gelatinous lumps, of about the size of a pea, may be discovered in the situations above described. These are polypi in a state of rest, and apparently without life. But they are capable of stretching both their body and their arms (six to ten in number) in an astonishing manner, and they are then seen to be composed of a stomach furnished with instruments of prehension. By these arms the polypus seizes any insect which approaches it, and conveys it to an orifice by which it passes into the stomach, and through which the undigested part is also voided. There is a great number of species of these little animals; the green, the brown and the orange-colored are the most common, and all the species have at the least six, or at the most twelve to thirteen arms. The latter are generally not longer than the body, but they are often one, and even eight inches in length. When, however, the polypi are taken out of the water, they look like a little mass of jelly, which frequently is hardly of the size of a grain of sand. They can extend one or several of their arms at the same time, and contract them in one or several parts, and thus are enabled to change their position, by applying them to a particular point, and drawing themselves to it. On examining the polypus with a microscope, the external surface resembles shagreen, and is covered with little grains, which are more or less close in proportion as the animal contracts or expands itself. On cutting the animal into pieces, the skin will be found to consist entirely of such grains, united by a kind of gummy substance. The color of these grains determines the color of the animal. The brown polypus has the longest arms, and employs the greatest variety of movements to seize its prey. All the species have not eyes, yet they have some method of discovering the approach of their prey to their arms, and show the greatest attention to it. When full, the polypus is torpid and motionless, but as it digests its food, it resumes its activity. As the whole animal is one entire stomach, the cavity of which is continued even to the extremities of the arms, the food may be seen to pass from the stomach through the latter, and from these back again to the stomach. To try this experiment, it is only necessary to give the polypus a worm of a red color. If it is constantly fed with insects of one color, the polypus takes the same color. It sometimes happens that two polypi lay hold of the same worm; in this case they continue eating till they break it asunder in the middle; and sometimes one also swallows the other; but they are incapable of digesting each other, and, after an hour or two, the one which has been swallowed issues out. The manner in which these animals propagate is not less remarkable than the rest of their organization. There appear small tubercles on the sides, which in a few days have the figure of small polypi. The connexion still remains; what the young one seizes, goes to the nourishment of the parent, and *vice versa*. But the end by which they are joined gradually becomes thinner, and finally they choose different points to attach themselves to, and are thus torn apart. The polypus produces young in this way, in all parts of the body, and often bears five or six at a time. Trembley, who kept them in glasses above a year, never observed any act of copulation among them; but some modern observers have thought that they propagate by eggs. Sometimes a polypus, not yet detached from its parent, becomes a parent and grand parent, all the individuals forming one whole. The indestructibility of their life is most astonishing, and their power, when mutilated, of supplying the lost parts anew; and if cut to pieces in any direction, each part forms a new animal. They may also be turned inside out and even grafted together. This remarkable power of reproduction gave them the scientific name *hydra*, in allusion to the fabulous monster of that name. How far the stories of similar animals, but of enormous size, inhabiting the bottom of the sea, are true or fabulous, is yet uncertain.

Polypus, in medicine; a name given to swellings, which form chiefly in the mucous membranes, and were considered to resemble the animal of the same name. These tumors are most common in the nostrils, the throat, the uterus, and are more rarely found in the stomach, the intestines, the bladder, or the external passage of the ear. Polypuses differ much in size, number, mode of adhesion, and nature. One species is called *mucous*, *soft*, or *vesicular* polypuses, because their substance is soft, spongy, vesicular, and, as it were, filled with white juices; another is called the *hard* polypus, and has been distinguished into the fibrous or fleshy, and the scirrhous or cancerous. The fibrous polypuses are of a dense, close texture, and of a whitish color; they contain few vessels, and do not degenerate into cancers. The scirrhous or carcinomatous polypuses are really cancerous, painful tumors, which discharge blood, and exhibit all the pathological changes of cancerous affections. Different modes of treatment must be adopted, according to the particular nature of the disease. Among the methods of cure are *exsiccation*, which consists in subjecting the polypus to the action of astringent powders or solutions, to effect the resolution of the tumor; *cauterization*, or the application of fire and caustics; *excision*, or the removal of the polypus by the knife; *extraction*, or its removal by the fingers, or by pincers; the *seton*, which consists in the application of a wire or thread, for the purpose of destroying the pedicle, or by *ligature*, which consists in tying up the base of the tumor, and causing it to fall off by the destruction of the vascular pedicle which nourishes it.

Polytechnics; used on the European continent, particularly in Germany, for the science of all mechanical arts and skill, aided or unaided by machinery.

Polytechnic School (*École Polytechnique*); an establishment which ranks among the first in the history of education. This school was established by a decree of the national convention of March 11, 1794, which was passed by the influence of Monge, Carnot, Fourcroy, &c. The committee of public safety had seen the necessity of providing for the education of engineers. The school was first called *école centrale des travaux publics*, which name was changed a year after. Men like Lagrange, Laplace, Berthollet, Fourcroy, and many other distinguished individuals, were its professors. It is now established in the buildings of the ancient college of Navarre. Napoleon did much for it, and under him it received considerable modifications. The pupils were obliged to live in the building, and wear a uniform. Its object is to diffuse the knowledge of the mathematical, physical and chemical sciences, and to prepare the pupils for the artillery service and the various departments of engineering, military, naval and civil. The number of pupils is limited to 300. The terms for the students not supported on the foundation are 1000 francs a year, independent of the expense of uniform and books. The pupil, at the time of admission, must be more than sixteen and less than twenty years old. The course of studies lasts two years, in certain cases three. A rigorous examination precedes admission, and another examination takes place before the pupils leave the institution, and it is invariably attended by the greater number of the marshals of France, together with many of the most distinguished scholars; "and," says an English writer, "the replies of the pupils might well astonish a senior wrangler of Cambridge, or a medallist of Dublin." The origin of this establishment, and the high character of the course of instruction, has always inspired the students with a warm love of their country. March 30, 1814, they fought bravely against the allies. In April, 1816, the school was abolished, the students appearing not sufficiently devoted to the Bourbons, who, however, were obliged to reëstablish it, in September of the same year. In the revolution of July, 1830, the students immediately took part with the people, and were of the greatest use, as well by their military knowledge as by their heroic enthusiasm; and several of the most important attacks during those memorable days were conducted by these youths. The *école polytechnique* is a favorite institution with the whole nation. (See *France*, vol. v, p. 237. See the work of M. Fourcy on this school, and *La Correspondance de l'École Polytechnique*, by M. Hachette.)

Polytheism; worship of several or many gods, opposed to *monotheism* (q. v.), (from πολυς, many, and θεος, god). The origin of polytheism may be different. We find tribes whose polytheism can be ascribed, almost beyond doubt, to the deification of the powers and phenomena of nature; but with others it cannot be so clearly traced. As to the views of the polytheism of antiquity, they may, perhaps, be classified under the following heads:—1. Monotheism was the pure religion revealed to the progenitors of the human race, handed down through the patriarchs, and, after its decline, revived in its purity by Moses, and taught to the children of Israel, whilst all nations except this chosen one deviated more and more from the true revelation, and created a host of gods, good and evil. (See *Monotheism*.) 2. Man, beginning with the savage state, proceeded in every thing from the concrete to the abstract; from the observation of nature, he rose to the natural sciences; from the measurement of space to mathematics; from the idea of just dealing, so natural in families, to that of politics and ethics; from the observation of beautiful things to ideal beauty; and from the knowledge of effects, only ascribable to higher powers, to the veneration of the powers of nature, to polytheism, and from this to monotheism. The chief objections to this view are that there are numerous nations which refined their polytheism more and more, but never arrived at monotheism, the two most civilized nations of antiquity not excepted, and that we meet with monotheism in the very records where, according to this view, we should expect it least, —those of the most ancient races, as given in the Bible. 3. Another view is taken of polytheism by Creuzer (q. v.), in his Symbolics and Mythology of the Ancient Nations, particularly of the Greeks (partly translated, partly rewrought by Guigniaut, in his *Religions de l'Antiquité, considérées principalement dans leurs Formes symboliques et mythologiques*, Paris, 1824 et seq.). He considers Greek polytheism as presupposing a whole system of ancient Asiatic poetry, philosophy and theology, the symbols of which gradually lost their hidden meaning, but still continued long in use as forms. 4. Others have considered the polytheism of the Greeks as the mere forms under which natural science had been preserved and taught in previous ages. 5. Some consider polytheism as having originated from a corruption of monotheism; others regard it as a deification of the powers of nature. Even the Greek polytheism is considered by many as indicating strongly the preëxistence of monotheism. (See *Mythology*.) The two extremes of polytheism may be considered to be *dualism* (q. v.), and *pantheism* (q. v.). The former is the belief in two original beings, a good and an evil spirit. It forms the basis of several Oriental religions, and is considered by many as merely a misconception of the primitive monotheism. Pantheism originates from polytheism. It makes the world itself God, and God the world, the One and the Whole. (See *Pantheism*.)

Polyxena; daughter of Priam and of Hecuba, whose fate is related by the post-Homeric epic poets. Achilles loved her, and advantage was taken of his passion for her to effect his death. According to some accounts, she returned his affection, and killed herself on his tomb. But according to the most common story, she was sacrificed to his Manes, either in Thrace or at his tomb.

Pombal, Sebastian Joseph Carvalho, count of Oeyras, more known as marquis of Pombal, a celebrated Portuguese statesman, was born in 1699, at the castle of Soura, near Coimbra, and died in 1782. His father was a captain of the poorer class of the nobility; but his mother, a Mendoza, and his uncle, a respectable ecclesiastic, opened to the young Carvalho, who, after having studied law at Coimbra, entered the army, the prospect of promotion. Nature had given him all the qualities which indicate a person destined for rule; a tall and strong frame, a vigorous constitution, a daring eye, a fiery temperament, strong passions, a penetrating judgment, and the most captivating address. In every thing which he undertook, he led the way. Having been banished from Lisbon on account of some youthful imprudences, the offspring of his ardent temperament, he passed several years at Soura devoted to study. While there, he gained the affections of Theresa de Noronha Almada, a rich widow, whose proud relations rejected with disdain his advances. He eloped, however, with the object of his passion, and his courage and resolution saved him from the daggers of assassins. At the same time, the contempt with which the family of his wife, the counts of Arcos, treated him, kindled his ambition to rise. He returned to court, where his address acquired him such high favor, that in 1739 he was appointed ambassador to London. Here he became acquainted with the relations between England and Portugal, and formed the plan of delivering his country from the fetters of the English commercial system. The new minister, Peter di Motta, his enemy, recalled him in 1745; but the queen, who was his patroness, sent him to Vienna to act as mediator between the pope and the empress Maria Theresa. Carvalho here gained general esteem, and, his first wife being dead, obtained the hand of the youthful countess of Daun. He was obliged, however, to refute the calumnies which a Portuguese of rank had circulated against him in Vienna, and to prove his claims to nobility. The queen now procured his nomination as ambassador to the Spanish court; but the king and his minister hated him; he was recalled, and even the influence of the queen was insufficient to overcome the aversion of the king (John V). It was in vain that Pombal insinuated himself into the favor of the Jesuits, and, by his entire devotion to the order, imposed upon them to such a degree as to obtain an intimate acquaintance with their organization, of which he afterwards made use when he was minister. The high nobility persecuted him with irreconcilable hatred; but Carvalho concealed his desire of revenge, and passed for the most amiable, modest and pious courtier in the service of the queen. John V died in 1750, and, through the influence of the queen dowager, Carvalho finally obtained from his successor, Joseph I, the long coveted post of secretary of state for foreign affairs. The confessor of the king, Moreira, a Jesuit, was his friend; and Carvalho courted the order with such zeal, that he was called the *great Jesuit*. He soon rendered the feeble and sensual king (particularly after the death of the queen mother, 1754) entirely subject to his influence. Joseph I, from fear of his brother dom Pedro, to whom Carvalho's enemies attached themselves, fell in with the most daring projects of his minister; and the latter now proceeded to the accomplishment of his four favorite objects;—the expulsion of the Jesuits; the humiliation of the high nobility; the restoration of the prosperity of Portugal, and the absolute command of the state, in the name of the monarch. The kingdom was reduced to the lowest condition. England, the Jesuits, and the high nobility, monopolized the wealth of the country, which was without an army or a fleet, without commerce or agriculture. The minister acted on the principles of the mercantile system, and although obliged to abandon many of his designs, succeeded in some of them. It required a man of his character to withstand the attacks to which he was exposed, from the inquisition, to which he prohibited its *autos da fè*; from the Jesuits, whom he expelled from their missions in Paraguay; from the high nobility, whom he deprived of their princely possessions in the colonies; and from the prelacy, whose powers he abridged. Then came the earthquake of Nov. 1, 1755, which buried 30,000 human beings, and destroyed property to the value of 400,000,000 dollars. Carvalho left the care of his own family and property, and appeared in the midst of the general despair, as a savior, displaying a vigor and resolution, which, alone, ought to have conciliated his enemies. He was to be seen for a whole week after this calamity, uninterruptedly employed in every place where aid was needed, in contriving means of relief, and restoring order; and, under the most disastrous circumstances and greatest difficulties, displayed the most active benevolence and most extraordinary energy. The king looked upon him as a favorite of Heaven, and submitted implicitly to his direction. Carvalho was now created count of Oeyras, and, in 1756, first minister. He then removed every one who ventured to obstruct his plans. It was necessary to proceed with the most unyielding rigor, since the profligate nobility perpetrated assassinations without hesitation, and plundered the people without mercy. But, with the pride of the great, whom he humbled, and the avarice, which his commercial regulations exasperated, was now connected the discontent of the country people, excited by his establishment of monopolies, which, however, was done only to counteract the actual monopoly of the English. The discontented vine-dressers committed excesses in Oporto; but Pombal suppressed the riots by the most comprehensive laws against treason, which made the will of the king valid against all constitutions and privileges. He also exposed, to the astonishment of Europe, the conduct of the Jesuits (who endeavored to persuade the public that he was Antichrist), in their government in Paraguay. In his *exposé* of this matter, there are, certainly, many exaggerations; and there is no doubt that the fathers ruled these provinces much better than the government of Spain or Portugal would have done. Carvalho finally determined to remove the Jesuits entirely from the person of the king. They were deprived of the place of confessors, and were ordered (September 16, 1757) to retire to their colleges. Several Portuguese grandees, who had joined in intrigues against the minister, were banished from Lisbon. Pombal now pushed his measures with vigor; as his attempts to encourage agriculture had been unsuccessful, he proceeded to extirpate the vine, and was, finally, completely victorious. A conspiracy against the life of the king, who was wounded on the night of September 3d, 1758, by assassins, whose blows he escaped only through the fidelity of his attendant, or the fright of his mules, delivered the minister's mortal enemies into his hands. Three months after the attempt, Pombal, on the night of the celebration of his daughter's marriage, at which the principal nobility were present, arrested the marquis of Tavora and his family, the Jesuit Malagrida, and, the next day, the duke of Aveiro and others. The minister and a member of the supreme judicial tribunal conducted the examination, and, after a hasty trial, a dreadful sentence was passed, and executed before the castle of Belem (January 13th, 1759). The duke of Aveiro and the marquis of Tavora were broken on the wheel, as the principals of the conspiracy; the sons and the son-in-law, with the servants of the former, were strangled, as accomplices; the wife of the marquis was beheaded, and a servant of the duke burnt, as were also the dead bodies of the others. The Jesuits were suspected of being the authors of the plot; but the marquis of Tavora, who had thrown out some accusations against them, had retracted them in writing. Still the minister denounced them to the pope, as the contrivers of the scheme, and not being able to procure immediately a bull, permitting the secular tribunals to proceed against them, he caused some of them to be executed in prison. Malagrida, who had prophesied the death of the king, was condemned to the flames by the inquisition, and burnt in 1761. Pombal had already banished the whole order from the kingdom, as rebels and enemies of the king, by a royal decree, of September 3d, 1759, and, as they did not comply with the mandate, caused them to be seized by soldiers, and transported, to the number of 1854, to the States of the Church. These proceedings gave rise to a protracted dispute with the pope; in 1760, Pombal transported the papal nuncio beyond the frontiers, and was on the point of dissolving all connexion with Rome, when Clement XIII died, and Clement XIV, his successor, abolished the order in 1773. Portugal was soon after involved in a short war with Spain, and, at a subsequent period, in a second war, on account of the minister's haughty conduct towards that government. The Portuguese army received an entirely new organization, and the fortifications on the frontiers were put in a better condition. Pombal was no less active in his efforts to improve the country in every relation, and paid particular attention to the schools; he also rendered the censorship less strict, and, by a law of 1773, established the toleration of converts to Christianity, who had before been treated as secret Jews, and denied many civil privileges. Projects of ambition and of vengeance on his enemies, who repeatedly attempted his life, and his plan of placing on the throne the prince of Beira, the grandson of the queen, occupied the rest of his public life. Joseph I, whose daughter was the bitter enemy of Pombal, died February 24, 1777, and the minister was dismissed. The state prisoners, whom he had incarcerated, 9800 in number, were released, and all his regulations were abolished, so that Portugal sunk back into its former state of imbecility. Pombal transferred to the young queen a treasure of 78,000,000 crusados, and a well organized state. But the hate of his enemies was more powerful than his services. The Portuguese nobility left no means untried to bring him to the scaffold. The queen caused an examination to be made into the trial of the assassins of the king, and Pombal saved himself only by exhibiting the original proofs of the conspiracy, which had not been made public. The hated and persecuted Pombal retained his titles and his estates, and, retiring into the village of Pombal, occupied himself in reading and in works of charity. He died there, May 8, 1782, in the eighty-fourth year of his age. His history has been misrepresented by his Italian biographer, an ex-Jesuit, and in the *Anecdotes du Ministère de Pombal* (Warsaw, 1784). See *L'Administration du Marquis de Pombal* (Amsterdam, 1788, 4 vols.).

Pomegranate (*punica granatum*). In its wild state, this is a dense spiny shrub, eight or ten feet high, but, when cultivated with care, and in a favorable climate, it attains double these dimensions. It is supposed to have originated in the north of Africa, and thence to have been introduced into Italy. By the Romans it was called *malum Punicum*, or Carthaginian apple, and the country adjacent to Carthage was then celebrated for its production. The leaves are opposite, lanceolate, entire and smooth; the flowers are of a brilliant red, large, and almost sessile; the fruit, when cultivated, attains the size of a large apple, and has a thick coriaceous rind, crowned at the summit with the teeth of the persistent calyx. It is filled with a multitude of small red seeds, and the pulp is more or less acid, and slightly astringent. The pomegranate is now naturalized as well as extensively cultivated throughout a great part of the south of Europe, for the sake of the fruit; and, even in those climates where this does not attain perfection, the beauty of the flowers renders it a favorite ornamental shrub. Numerous remarkable varieties have been produced, differing in the beauty of their flowers, and in the taste and quality of the fruit. The pomegranate, in warm climates, sometimes attains an enormous size. A cooling and agreeable beverage is made of the juice mixed with water and sugar or honey. Another species (*P. nana*) inhabits the West Indies and Guiana, where it is sometimes used as a hedge plant. The flowers and fruit are very small. These two plants, by themselves, constitute a distinct natural family.

Pomerania (in German, *Pommern*); a duchy belonging to Prussia, having Mecklenburg on the west, Brandenburg on the south, West Prussia on the east, and the Baltic on the north. It is divided by the Oder into Anterior or Hither Pomerania (*Vorpommern*), and Hinder or Farther Pomerania (*Hinterpommern*). It contained, in 1828, a population of 877,555, principally Protestants, on 12,000 square miles. It is a low and almost level country. The Oder (q. v.) is the principal river. The soil is in general sandy and indifferent. The mineral productions are unimportant, and the manufactures inconsiderable. The commerce, of which Stettin (q. v.) is the centre, is of more consequence. The principal productions are corn, flax, hemp, tobacco and wood: besides these articles, cattle, butter, wool, &c., are exported. Pomerania is divided into three governments, Stettin, Köslin and Stralsund. The duchy was claimed by the house of Brandenburg in 1637, on the extinction of its ducal house, but it was occupied by Sweden during the thirty years' war, and Farther Pomerania was retained by that power at the peace of Westphalia. Prussia acquired a large part of Farther Pomerania by the peace of Stockholm (1720), and, in 1815, obtained the remainder from Denmark (to whom it had been ceded by Sweden) in exchange for Lauenburg, and a sum of money. Since 1823, Pomerania has provincial estates, and the present king of Prussia has abolished slavery. The Pomeranians are partly Germans and partly Cassubians, or descendants of the old Vandals, with a peculiar dialect. (See *Prussia.*)

Pomfret, John, an English poet, was born in Bedfordshire in 1667, studied at Queen's college, Cambridge, and took orders. He died in 1703. His Choice has been highly popular. His poems were published in 1699, and some additional pieces appeared after his death.

Pomology; a word much in use in France and Germany for that branch of gardening which embraces the cultivation of fruit trees, shrubs, &c. (*pomaceæ*, *drupaceæ*, *bacciferæ*), and, of course, the cultivation of the fruits themselves. There exist many pomological societies, much the same as the English and American horticultural societies, though the former, as the name implies, direct their attention chiefly to the cultivation of fruits.

Pompadour, Jeanne Antoinette Poisson, marchioness de; the mistress of Louis XV, in whose affections she succeeded Mad. de Châteauroux. She was born in 1720, and was the daughter of a kept mistress by a farmer of Ferté-sous-Jouare, who had made a tolerable fortune in the corn trade, and was accused of some frauds. In 1741, she was married to a *sous-fermier* d'Étioles. She was well educated, sensible, amiable, rich in graces and accomplishments, and gifted by nature with a good heart and a good understanding. "I know her well," said Voltaire: "I was the confident of her love. She declared to me that she had always had a secret presentiment that she should be loved by the king, and that, without well knowing why, she had felt a violent inclination in his favor." This notion, which, in her circumstances, was somewhat wild, seems to have been raised by her often seeing the king at the chase in the forest of Senart. Tournehem, her mother's lover, had a country seat in the vicinity. Mad. d'Étioles made her appearance in a sort of a calash, and attracted the notice of the king, who frequently sent her game. She was finally presented to the king, whose favor she soon entirely engrossed. In 1745, she appeared at court under the title of marchioness of Pompadour. Here she enjoyed the highest consideration, but did not at first interfere in political affairs, satisfied with appearing as the patroness of learning and the arts. She collected books, pictures and curiosities, and encouraged the institution of the military school, of which Paris du Verney was the founder. But, when her charms began to fade, and she could only maintain her influence with the king by furnishing him other objects for the gratification of his passions, she turned her attention to state affairs. She filled the most important offices with her favorites, and contributed to produce those evils which afterwards pressed so heavily on France. It is said to have been principally owing to her that France became involved in the war against Frederic II. The empress Maria Theresa had propitiated her favor by writing to her with her own hand. The burdens and sufferings which this war brought upon France must be laid at her door, since she removed Bernis, who was in favor of peace, and supplied his place by Choiseul, effected the recall of marshal d'Estrées at the moment of triumph, and promoted incapable generals to the command. She died in 1764, at the age of forty-four years, little regretted by the king (see *Louis XV*), and hated and reviled by the nation. The memoirs and letters which appeared under her name are not genuine, but are attributed to the younger Crebillon. (See the *Mémoires* of Mad. Campan, and those of Du Hausset.)

Pompeii; an ancient city of Campania, formerly celebrated for its commerce, which was partly destroyed by an earthquake, A. D. 63, and, together with Herculaneum, was buried by a stream of lava, or rather by a shower of ashes, A. D. 79, and first discovered in 1748. It lies about twelve miles south-east from Naples. Pompeii is said to have been founded by the Opici, and, at a later period, was in the possession of the Samnites, who, having revolted, were replaced by Roman colonists. Although a less considerable city than Herculaneum, it contained many fine works of art, a large theatre, and many handsome buildings. (For an account of the excavations, see *Herculaneum.*) The excavations are still continued. The bed of ashes was about eighteen feet in depth. Although two thirds are still covered, it is estimated that the town was three quarters of a mile in length by nearly half a mile in breadth. The walls are from eighteen to twenty feet high, and twelve thick, and contained several main gates, of which six have been uncovered. Twenty streets, fifteen feet wide, paved with lava, and having footways of three feet broad, have also been excavated. The houses are joined together, and are generally only two stories, with terraces for roofs. The fronts are often shops, with inscriptions, frescoes and ornaments of every kind. The principal rooms are in the rear: in the centre is a court, which often contains a marble fountain. In some of the houses the rooms have been found very richly ornamented. A forum, surrounded with handsome buildings, two theatres, an arena, temples, baths, fountains, statues, urns, utensils of all sorts, &c., have been discovered. Most of the objects of curiosity have been deposited in the museums of Naples and Portici: among them are a great number of manuscripts. It is probable that most of the inhabitants escaped, as few skeletons have been found.—For further information, see Gell and Gandy's *Pompeiana* (London, 1817—19), and the new series, conducted by the former, *Pompeiana* (part x, London, 1831); Wilkins's *Views of Pompeii;* Cooke's *Delineations* (London, 1827, 2 vols., folio, 90 plates); the account of P. in the Lib. of Entertain. Knowl.; Bibent's Plan of Pompeii (Paris, 1826), showing the progress of the excavations from 1763 to 1825; and Goro's *Wanderungen durch Pompeji* (Vienna, 1825).

Pompey (Cneus Pompeius), surnamed the Great (*Magnus*), born B. C. 107, was the son of Cneus Pompeius Strabo, an able general, but hated for his severity and avarice. The young Pompey had received from nature a pleasing person, and a graceful dignity, and early displayed talents which promised him equal success in the field and the forum. He first served under his father, who commanded an army against Cinna, in the neighborhood of Rome during the Marian war. Here he narrowly escaped being assassinated by his comrade Terentius, who had been hired by Cinna to murder father and son. Having received information of the plot, he abandoned his tent in the evening, and secured his father's life, by stationing a guard round the prætorium. Soon after a mutiny broke out in the army, and the soldiers had formed the resolution to desert their obnoxious commander; but Pompey, then a youth of nineteen years of age, presented himself among the rioters, and, after trying remonstrances and prayers without effect, threw himself before the gate of the camp, and declared that they should go out only over his body. This firmness had the desired effect. By his gracious words and manner, he reconciled the soldiers to his father, who soon after perished by lightning. The party of Marius and Cinna gained the ascendency, and deluged Rome with blood. Pompey, who had retired to the neighborhood of Picenum, where his estates lay, raised a body of troops on his own account, on the approach of Sylla, and compelled the neighboring cities to declare themselves for this general. His popularity enabled him to raise three legions, with which he joined Sylla in Campania. Three leaders of the opposite party had attempted to obstruct his march, but he defeated them successively, and was received by Sylla with the highest marks of esteem, and saluted by him as *imperator*, although he had not yet attained the senatorial age, being but twenty-three years old. A series of sanguinary engagements ensued, by which the Marian faction was annihilated in Italy, and Sylla became the absolute master of Rome. To bind Pompey more closely to his interests, Sylla persuaded him to divorce his wife Antistia, and to marry his own step-daughter Æmilia. It was fortunate for Pompey's fame that he was employed, while Sylla was perpetrating his atrocities in the capital, in Sicily against the Marian general Perpenna. He drove Perpenna from the island, and won the affection of the Sicilians by his clemency. The Marian party had, meanwhile, collected in force in Africa, under Domitius Ahenobarbus, and received aid from the king of Numidia. Sylla obtained a decree of the senate, intrusting the command in that province to Pompey. Making a sudden attack on Domitius, at the head of five legions, he dispersed the greater part of his forces, stormed his camp, killed Domitius, took the Numidian king captive, and gave his dominions to one of his own partisans. This rapid and decisive success, which occupied only fourteen days, excited the jealousy of Sylla, who commanded him to dismiss his forces and return to Rome. But the soldiers, who saw their hopes of plunder disappointed, broke out into a mutiny, and were reduced to obedience only by Pompey's threat to kill himself, if they persisted in their designs. On his return, Pompey was received by Sylla with every mark of favor. According to Plutarch, it was from Sylla, but, according to Livy, from his flatterers, that Pompey received the surname of *Magnus*, which he thenceforward continued to bear. The jealousy of the dictator was, however, revived, when the former demanded a triumph. Sylla declared to him that he should oppose this claim with all his power; but Pompey did not hesitate to reply, that the people were more ready to worship the rising than the setting sun, and Sylla yielded. Pompey therefore obtained the honor of a triumph, although he was the first Roman who had been admitted to it without possessing a higher dignity than that of knighthood, and was not yet of the legal age to be received into the senate. Sylla soon after abdicated the dictatorship, and, at the consular election, had the mortification to feel his rival's ascendency. He revenged himself by passing him over in his will; but Pompey was magnanimous enough to respect the dead, and used his influence to have his body buried at the public expense, with the greatest pomp. New troubles soon broke out, occasioned principally by the ambitious projects of the consul Lepidus, who aimed at supreme power. Lepidus left Rome, and placed himself at the head of an army, but was defeated by the united forces of the consul Catulus and Pompey. The latter was then commanded to march against M. Junius Brutus (father of the celebrated M. Brutus), who commanded a body of troops in Cisalpine Gaul in the interest of Lepidus. Pompey compelled him to surrender, and put him to death, notwithstanding that he had promised him a safe conduct. A period of quiet now followed, and Catulus endeavored to oblige Pompey to dismiss his troops. This the latter evaded, under various pretences, until the progress of Sertorius, formerly a general in the service of Marius, in Spain, induced the senate to send Pompey, now thirty years of age, to the support of Metellus, who was unequal to cope with so able an adversary. He was invested with proconsular power. The two commanders, who acted independently of each other, though with a mutual good understanding, were both defeated through the superior activity and skill of Sertorius. Pompey lost two battles, and was personally in danger; and, as long as Sertorius was alive, the war was continued with little success. But Sertorius having been murdered by his own officers, and succeeded in the command by Perpenna, Pompey soon brought the struggle to an end. On his return to Italy, the servile war was raging: Crassus had already gained a decisive victory over Spartacus, the leader of the rebels, and nothing was left for Pompey but to complete the destruction of the remnants of the servile forces; yet he assumed the merit of this triumph, and displayed so little moderation in his success, that he was suspected of wishing to tread in the steps of Sylla. He triumphed a second time, and was chosen consul B. C. 70, although he had yet held none of those civil offices through which it was customary to pass to the consulship. His colleague was Crassus, and both of them courted the people—Crassus by his profuse largesses, and Pompey by the restoration of the tribuneship, and other popular institutions. In the course of the year, when the censors were, according to custom, engaged in granting release from service to such knights as had served the time required, Pompey appeared before them, in his consular robes, and leading his horse by his bridle. The censor asked him—"Pompey the Great, have you served the time required by law?" "Yes," answered he, "and all under my own command." This answer was received with a general shout of applause: the censors rose from their seats, and accompanied him, amidst the acclamations of the multitude, to his house. Two years after the expiration of his consulship, the pirates, encouraged by the Mithridatic war, had become so powerful in the Mediterranean that they carried on a regular warfare along a great extent of coast, and were masters of 1000 galleys and 400 towns. The tribune Gabinius, a man devoted to the interests of Pompey, proposed that an individual (whose name he did not mention) should be invested with extraordinary powers by sea and land for three years, to put an end to the outrages of the pirates. Several friends of the constitution spoke with warmth against this proposition; but it was carried by a large majority, and the power was conferred on Pompey, with the title of proconsul. In four months he cleared the sea of the ships of the pirates, got possession of their fortresses and towns, set free a great number of prisoners, and took captive 20,000 pirates, to whom, no less prudently than humanely, he assigned the insular towns of Cilicia and other provinces which had been abandoned by their inhabitants, and thus deprived them of any opportunity of returning to their former course. Meanwhile, the war against Mithridates had been carried on with various fortune, and, although Lucullus had pushed the enemy hard, yet the latter still found new means to continue the contest. The tribune Manilius then proposed that Pompey should be placed over Lucullus in the conduct of the war against Mithridates and Tigranes, and likewise over all the other Roman generals in the Asiatic provinces, and that all the armies in that quarter should be under his control, at the same time that he retained the supreme command by sea. This was a greater accumulation of power than had ever been intrusted to any Roman citizen, and several distinguished men were resolved to oppose a proposition so dangerous to freedom with their whole influence: but Pompey was so high in the popular favor that, on the day appointed for the consideration of the proposition, only Hortensius and Catulus had the courage to speak against it, while Cicero, who hoped to obtain the consulship through the support of the Pompeian party, advocated it with all his eloquence, and Cæsar, to whom such deviations from the constitution were acceptable, used all his influence in favor of it. Cicero's oration *pro lege Manilia* contains a sketch of Pompey's public life, with the most splendid eulogy that, perhaps, was ever made on any individual. The law was adopted by all the tribes, and Pompey, with assumed reluctance, yielded to the wishes of his fellow-citizens. He arrived in Asia B. C. 67, received the command from Lucullus, who was the less able to conceal his chagrin as Pompey industriously abolished all his regulations. (See *Mithridates.*) The king was driven from his strong holds, defeated with the loss of his camp, and compelled to flee into the country beyond the Caspian. Pompey, who had, at the same time, detached Tigranes from his alliance with Mithridates, and placed his kingdom at the disposition of the Romans, followed Mithridates to Scythia, and waged war for two years with the warlike inhabitants of that region. He then returned to Pontus, completed the conquest of that kingdom, and converted Syria into a Roman province. At the invitation of the two brothers Aristobulus and Hyrcanus, who claimed the throne of Judæa, he appeared in that country to settle the dispute. After a three months' siege, he took Jerusalem by storm, and conferred on Hyrcanus the dignity of high-priest. In the mean time, Mithridates, reduced to despair, had poisoned himself, and thus ended the war. After Pompey had settled the affairs of Asia, he visited Greece, where he heard the orators and poets, and displayed his respect for philosophy by making a valuable gift to the city of Athens. He then returned to Italy, dismissed his army, to quiet the apprehensions of the citizens, as soon as he landed at Brundusium (B. C. 61), and entered Rome as a private man. The whole city came out to meet him, and received him with acclamation. His claim of a triumph was admitted without opposition; and never had Rome yet witnessed such a splendid display as on the two days of his triumphal procession. Captive kings and nobles walked before his chariot, and the spoils which were poured into the public treasury amounted to an enormous sum. After the triumph, Pompey allowed all the captives to return to their country except Tigranes and Aristobulus. His plan now was, under the appearance of a private individual, to maintain the first place in the state; but he found obstacles on several sides. Lucullus and Crassus were superior to him in wealth; the zealous republicans looked upon him with suspicion; Cæsar was laying the foundations of his future greatness. Pompey was therefore driven to artifices of all sorts, and attached the profligate Clodius to his interest. Cæsar, on his return from Spain, aspired to the consulship. To effect his purpose, he reconciled Pompey and Crassus with each other, and united with them in forming the coalition which is known under the name of the *first triumvirate.* He was chosen consul (B. C. 59), and, by the marriage of his daughter Julia with Pompey, seemed to have secured his union with that general. From this time Pompey countenanced measures which, as a good citizen, he should have opposed as subversive of freedom. He allowed his own eulogist, Cicero, to be driven into banishment by the tribune Clodius; but, having afterwards himself quarrelled with Clodius, he had the former recalled. He supported the illegal nomination of Cæsar to a five years' command in Gaul; the fatal consequences of this compliance afterwards appeared. To maintain their power, Pompey and Crassus were a second time candidates for the consulship, which they obtained, though not without violence (B. C. 55). After the expiration of their year, Crassus went to his government in Asia, while Pompey, to whom Spain was assigned, remained at

Rome, and exhibited shews to the people. Yet he did not entirely trust to the popular favor, but maintained an army to keep the citizens in awe. The fall of Crassus in Parthia left but two masters to the Roman world; and, on the death of Julia in childbed, these friends became rivals. Pompey, however, still retained so much good will towards Cæsar, that he sent him two legions to supply his losses. As the troubles increased in the capital, it was the wish of some that Pompey should be named dictator; but Cato proposed, as a more regular mode of proceeding, to name him sole consul, which was done B. C. 52. As Cæsar's reputation as a general and his favor with the people continually increased, Pompey endeavored to strengthen his influence by a union with the principal families. With this view, he married Cornelia, widow of the young Crassus, and daughter of Metellus Scipio, whom he made his colleague in the consulship; and he procured a rejection by the senate of Cæsar's request for a continuation of his command in Gaul. The most important offices were filled, by his influence, with the enemies of Cæsar, and he recalled the two legions which he had lent him. It was now proposed that both should lay down their commands; but Pompey's adherents objected that Cæsar's time had already expired, while Pompey's had not. It was soon evident that they were suspicious of each other, and that neither was inclined to return to a private station. Lucan, who in his sentiments was a Pompeian, says that Pompey could not bear an equal nor Cæsar a superior. The former had certainly the forms of the law on his side, since the senate had recalled Cæsar, and confirmed Pompey in his command. In actual strength, the two rivals were very unequal. Pompey had never been equal in ability to Cæsar, and was now but the shadow of a great name. He himself was not conscious of this decline of his influence; and when Cicero, who found him deaf to all proposals of accommodation, asked him how he thought to oppose Cæsar, he replied, "I have only to stamp with my foot, and an army will arise out of the ground." Cæsar had already (B. C. 49) laid siege to Ravenna, and was declared an enemy to his country by the senate, which, but too late for the activity of his rival, committed to Pompey the defence of the state. Cæsar passed the Rubicon (q. v.), and approached the city. In sixty days he subdued all Italy. Pompey, besieged in Brundusium, fled to Greece where he collected a numerous army. Cæsar followed him, first offering terms of accommodation, then battle. Pompey declined both, and encamped before Dyrrachium. Cæsar surrounded him, but he broke through the enemy and escaped, though with a heavy loss. They finally met near Pharsalus, in Macedonia (B. C. 48). Pompey had been forced by his officers to engage, and showed himself unworthy of his fame. When he saw his troops thrown into disorder, he retired to his tent, and remained in a state of stupefaction till the approach of the conquerors aroused him to attend to his safety. He fled through Larissa to the sea, and sailed to Lesbos. Here he found his faithful Cornelia, with whom and some friends he coasted along the shores of Asia. At Cyprus a council was held in regard to his future course. Pompey wished to go to Parthia, but, on the proposition of the Greek Theophanes, he proceeded towards Egypt, where he might expect a favorable reception from the young Ptolemy, whose father had received benefits from his hands. As soon as his approach to Egypt was known, the base ministers of the youthful king determined to possess themselves of his person, and put him to death. On his arrival, a boat was accordingly sent, with Achillas, the Egyptian general, and some Roman fugitives, inviting him to land. Pompey feared treachery, but it was now too late to recede. After tenderly taking leave of his wife and his son, he stepped into the boat. A numerous multitude on the shore awaited his approach; but before he had landed, the murderers struck him down. Covering his head with his toga, he expired without a groan. His head was separated from his body, and the trunk was left naked on the shore. A faithful freedman and a Roman soldier, who had served under Pompey, collected some wood, and burned the sad remains of him who had once been the master of Rome. When Cæsar arrived in Egypt, the head of his enemy was shown to him; but he turned away from the sight with tears, punished his murderers, caused the head to be solemnly interred, and over his grave erected a temple to Nemesis. Pompey was fifty-nine years old at the time of his death; his name is among the most celebrated of antiquity (*clarum et venerabile nomen gentibus*). He was moderate in pleasure, free from extravagant luxury, and, in the highest pitch of his fortune, kind, mild and humane, when not carried away by party spirit. His genius was various, and his mind was cultivated by philosophy and letters. If he was not a true patriot, his ambition was not to be the destroyer of freedom, but the chief of a free commonwealth; or, as Lucan says of him, *rector senatus, sed regnantis*. Incapable of sustaining himself at the height which he had reached, he fell rapidly, and lost some of his fame by the manner of his fall. Pompey left two sons, Cneus and Sextus. The former lost his life in the battle of Munda; the latter, after Cæsar's death, made himself formidable to the new triumvirs by sea, and was finally (B. C. 35) put to death, by the command of Antony, in Armenia, whither he had fled.

Pompey's Pillar. (See *Column*.)

Pomponius Mela. (See *Mela*.)

Ponce de Leon, Juan, one of the early Spanish discoverers in America, was sent by Ovando to conquer the island of Porto Rico; and having there amassed great wealth, and received information of an island situated to the north, in which there was a miraculous fountain possessing the power of restoring youth to the aged, he sailed, in 1512, in quest of these happy shores. Although he was unable to find the fountain of youth, he discovered the country to which he gave the name of *Florida*. (q. v.) Ponce returned to Spain, and received from Ferdinand permission to colonize the island of Florida, as he called it, but soon after returned to Porto Rico (q. v.) without making any attempts at colonization. (See Irving's *Discoveries of the Companions of Columbus*.)

Pondicherry; since 1672, the capital of a French colony in the East Indies, on the Coromandel coast, in the Carnatic, lying in a sandy and dry plain, at the mouth of the Ariancupan, which here empties into the sea of Bengal; lat. 11° 55′ N.; lon. 79° 23′ E. It was first built, at a comparatively recent period, by some fugitives from Verapatam, and gradually increased to such a degree, that in 1761 it contained 70,000 inhabitants; but it has since declined, and at present has not above 25,000 inhabitants, who occupy different quarters of the town, according to national distinctions (Europeans, Mohammedans, Hindoos, &c.). Very delicate cotton fabrics, which employ about 5000 hands, are made in the town and territory. The houses of the town, formerly an important fortress, are handsomely built in the European style; and there are here several Roman Catholic churches, Hindoo temples, mosques, and some European institutions for education. The roadstead is very good, but there is no port. The territory, about 85 square miles, contains a population of 8000 natives. Pondicherry, on account of its favorable situation, is, in time of peace, the emporium of the French commerce with India. It was taken and destroyed by the English in 1761, restored in 1763, again taken in 1778, again restored by the peace of Versailles, in 1783; in 1793, it was taken possession of by the nabob of the Carnatic, in connexion with the English, and the fortifications were destroyed. By the peace of Amiens (1802), the town and territory were again restored to France, but again captured by the English, and retained until 1814. Since that time it has belonged to the French, who are bound, by the peace of Paris, not to restore the fortifications, and not to keep a larger number of troops than is required for purposes of police.

Pongo. (See *Ape*.)

Poniatowski; the name of an illustrious Polish family, descended from an Italian stock. Joseph Salinguerra (born 1612), belonging to the old Italian family Torelli, having settled in Poland, after the murder of all his house by Ranuzio I, duke of Parma, took the name of Eziolek, and afterwards that of Poniatowski, from an estate Poniatow of his wife, the daughter of Albert Poniatowski and Anna Leczinska. His descendants received the title of *prince* in 1764, and the family still forms one of the thirty-six Roman ducal and princely families, but has not the same privileges with the thirty-five others.—*Stanislaus*, count Poniatowski (born 1678, died 1762) is known for his connexion with Charles XII (q. v.), whom, after the battle of Pultawa, he followed into Turkey, and as whose ambassador at Constantinople he had the address to involve the Porte in a war with Russia. He wrote *Remarques d'un Seigneur Polonais sur l'Histoire de Charles XII par Voltaire* (Hague, 1741).—His eldest son, *Stanislaus II Augustus* (born 1732), the favorite of Catharine II (q. v.), was elected king of Poland, under the influence of Russian bayonets, in 1764. He was an elegant and accomplished gentleman, with good intentions, but without the energy and firmness of purpose necessary to sustain a tottering throne, and bridle a licentious nobility. The Czartoryski family, with which he was connected, had sent him to Petersburg, to promote the election of prince Adam Czartoryski to the Polish throne, on which, however, the handsome ambassador was himself seated by Catharine's favor, and the Czartoryskis, finding they could not even rule in his name, began to intrigue against him. His attempts to remove the civil disabilities of the dissidents (q. v.), and to introduce some modifications into the Polish constitution, raised a powerful party against him. A confederation was accordingly formed, which was put down by Russian troops, and Poland was obliged to submit to a disadvantageous treaty (1767); but new confederations, at Bar (see *Poland*), Halicz and Lublin, involved the country in the horrors of a civil war (1768). The Catholic confederates declared the throne vacant, and a body of conspirators, under count Pulaski (q. v.) seized the person of the king on the night of Nov. 3, 1771. Being left alone with a person by the name of Koczinski, the king persuaded him to allow him to write to Warsaw, whence a guard was sent to conduct him home. Austrian and Prussian troops now filled the country, and most of the nobles, therefore, abandoned Stanislaus, and, in 1772, in spite of the remonstrances of the king and the senate, the first partition of Poland was made by the three great robbers, Russia, Prussia and Austria. The king was now become totally dependent on the standing council, which was governed by the Russian ambassador. The Polish nobles at length discerned the true means of securing the independence of Poland. (See *Potocki*.) They obtained from Frederic William II of Prussia a promise to stand by the republic, in case it should be attacked on account of its amendments of the constitution, and Prussia gave her consent to the constitution of May 3, 1791, which had been accepted by Stanislaus. In this situation, Stanislaus conducted with so much wisdom and dignity, as to recover the esteem and love of the nation. He also seemed determined to brave the resentment of Catharine; but, the connexion with Prussia having been broken, and the minority of the diet, which was opposed to the constitution, having procured a reversal of the proceedings, through Potocki and Rzewuski, from Vienna and Petersburg, the feeble Stanislaus gave way. The Polish army, notwithstanding the valor of Kosciusko (q. v.), was not suited for a long resistance, and Stanislaus, who had sworn to perish with his people, rather than submit, acceded, at the request of Russia, to the confederation of Targowitz. He thus alienated the minds of the nation, without disarming Catharine. Prussia and Russia now proceeded to a second partition (1793), for the purpose, as they declared, of setting limits to Jacobinism in Poland. The king's opposition only served to expose him to personal abuse from the Russian general Rautenfeld, and the Russian ambassador, count Sievers. Catharine obliged him (1794) to sign the act of partition, which completed the political annihilation of the Polish state, and to abdicate the throne (Nov. 25, 1795) on the anniversary of his coronation. He went to Petersburg, where he received a pension, living as a private individual, and died in 1798.—*Joseph*, the nephew of Stanislaus, born in 1763, served with courage against the Russians in 1792, and, on the accession of his uncle to the confederation of Targowitz, left the service, with most of the best officers. When the Poles attempted, in 1794, to drive the Russians out of the country, he again joined the Polish camp, as a volunteer. Kosciusko gave him the command of a division, at the head of which he distinguished himself at the two sieges of Warsaw. After the surrender of the city, he went to Vienna, and, rejecting the offers of Catharine and Paul, lived in retirement, on his return to Poland, at his estates near Warsaw. The creation of the duchy of Warsaw rekindled the hopes of the Polish patriots, and Poniatowski accepted the place of minister of war in the new state. In 1809, he commanded the Polish army against the superior Austrian force, which was sent to occupy the duchy, compelled it to retire, rather by skilful manœuvres than by force of arms, and penetrated into Galicia. In the war of 1812, against Russia (see *Russian-German War*), he was again at the head of the Polish forces, and distinguished himself in all the principal affairs of this chequered campaign. After the battle of Leipsic (q. v.), during which Napoleon created him marshal of France, he was ordered (October 19) to cover the retreat of the French army. The enemy were already in possession of the suburbs of Leipsic, and had thrown light troops over the Elster, when the prince arrived, with a few followers, at the river, the bridge over which had been blown up by the French. Poniatowski, already wounded, plunged, with his horse, into the stream, which swallowed up horse and rider. His body was first found on the 24th, and buried with all the honors of his rank, on the 26th. It was afterwards removed to Warsaw, and, in 1816, was deposited in the cathedral at Cracow. Thorwaldsen has executed an equestrian statue of Poniatowski, for the city of Warsaw.

Ponta Delgada. (See *Michael's, St.*)

Pontchartrain; a lake of Louisiana, about 25 miles long from east to west, and nearly the same in breadth. The water is generally from twelve to fourteen feet deep. It communicates with lake Borgne on the east, with lake Maurepas on the west, and with New Orleans on the south, by bayou St. John and a canal, and also by a rail-road. It is surrounded by marshes, and the landing is generally difficult.

Ponte-Corvo; a town in the States of the Church, 60 miles south-east from Rome, from which Bernadotte received the title of *Prince of Ponte-Corvo*. (See *Charles XIV*.)

Ponte-Corvo, Prince of. (See *Charles XIV*.)

Pontifex; a priest, who served no particular divinity. Under Numa, who regulated the sacred rites of the Romans, there was only one pontifex. This number was afterwards increased to four, then to eight, and, under Sylla, to fifteen. The pontifices formed a particular college of priests, which superintended the affairs of religion, at the head of which was the pontifex maximus, the chief priest, whose duty was the inauguration of the priests, and, in earlier times, the care of the public records (*annales maximi*). He also superintended the sacred rites of Vesta. He held his office for life, and could not leave Italy. The emperors afterwards assumed this title. The pontifices had the supreme superintendence of the religious worship, and its ministers directed the religious solemnities, had the care of the calendar, and decided lawsuits which were connected with religion (hence the *jus pontificum*). The external badge of the pontifex, at least on solemn occasions, and while engaged in the duties of his office, was a dress bordered with purple (*toga prætexta*), and a tapering hat in the form of a cone, which was made of the skins of sacrificed animals (*tutulus* or *galerus*). The dresses of the superior clergy in the Roman Catholic church, which they wear particularly on festivals, are called *pontificalia*.—*Pontificate* is the dignity of the pontifex; likewise the papal dignity, as the pope himself is called, in Latin, *pontifex maximus*.

Pontifical; the book containing the prayers and rites to be used by the pope and bishops in the exercise of their functions, as confirming, conferring orders, consecrating bishops and churches, &c. The Catholics think that pope Gelasius, a century before Gregory the Great, had already done something towards forming this collection.

Pontificalibus. (See *In Pontificalibus*.)

Pontificate. The pope being called *pontiff*, the time of his government is called his *pontificate*.

Pontine Marshes; that tract of land in the papal dominions, south of Rome, which extends from Nettuno to Terracina: it is about forty-five miles long, and from four to eleven broad. The origin of these marshes, which must not be confounded with the Maremmas (q. v.), is lost in the most remote antiquity. Homer describes the abode of Circe (the promontory Monte Circello, near Terracina) as an island; and it is not improbable, that all these low grounds were once covered with the sea, as was the territory of Ravenna, on the eastern coast. In the early times of the Roman republic, there were, according to Pliny, on the testimony of former historians, thirty-three cities, situated in this region, all of which, either by wars, or perhaps by the increasing influence of the *miasma*, disappeared at a very early period. The principal city, Pometia, gave its name to the marshes, which are formed by great quantities of water, received from innumerable streams, which, rising in the neighboring mountains, run into the plain, where, for want of a sufficient declivity towards the sea, they pass off very slowly, become stagnant, and at length lose themselves in the sand. The loss of so great a portion of fertile land, and the unwholesome vapors, which the south wind often carried even to Rome, early attracted the attention of the Romans (who thought no undertaking too difficult) to the means of remedying this evil. Appius Claudius (312 B. C.) probably made the first attempts at draining them, when he carried the celebrated Appian way through the marshes. He was succeeded in this attempt by the consul Cethegus. Julius Cæsar formed the gigantic plan of conducting the Tiber through the marshes; but he was prevented by death from its execution. Augustus contented himself with undertaking several canals. Under the succeeding emperors, these attempts to improve this part of the country were abandoned; and the water overflowed, till Nero renewed the work. Trajan continued it, during ten years, with so much spirit, that the whole tract from Treponti to Terracina was drained, and the Appian way was completely restored. During the political storms, which destroyed the Roman empire, the marshes also reverted to their former dreary condition. Under the Gothic king Theodoric, attempts were once more made to drain them, and, as it appears, not without success. But the operations were not long persevered in, and hostile nature soon resumed her rights. Among the popes, Boniface VIII (who died in 1303) was the first who occupied himself with the draining of the marshes; and he caused a large canal to be dug, by means of which the country around Sezze and Sermonetta remains dry even to this day. Martin V, in 1417, likewise caused a great canal, the Rio Martino, to be dug, for the extension of which to the sea hardly a mile was wanting, when this undertaking, which would have supplied an outlet for all the streams, was interrupted by his death. Leo X conferred the whole country upon Giuliano de' Medici, on condition that he would cause it to be drained. Yet during the 69 years of its continuance in the hands of the Medici, little or nothing was done towards this object. Sixtus V, who died in 1590, applied himself with zeal to this undertaking, and visited the country in person. He also caused a great canal, the Fiume Sisto, to be dug, and enclosed with dams, which, however, being too slightly built, shortly after his death gave way, so that the whole country became again as marshy as ever. After him, no pope had the courage, for a long time, to set about this work with earnestness. Pius VI turned his attention again to the Pontine marshes. The levelling was performed with the greatest accuracy, the depths of the various canals and outlets were measured, the degree of declivity in the bed of the rivers ascertained, and, in 1778, the work was commenced. For ten years, it was continued at the greatest expense, till, in 1788, it was completed. But, notwithstanding every exertion, it was found impracticable to raise the low lands, and give them a proper slope for the numerous streams; yet the judiciously conducted canals, the cleansing of the beds of the different streams, whose slime filled the air with unwholesome vapors, the laying out of an excellent highway (Linea Pia), bore witness to the services rendered by Pius VI to this country. During the French government these labors were also continued; yet it seems as if the old marshes would not submit to the restraint of cultivation. This country is not as frightful as it is usually represented; but it is very monotonous, and the predatory habits of the inhabitants, which the vigorous measures of the French government in some degree kept under restraint, have in later times resumed all their former lawlessness. It may further be observed, that this district contains a considerable extent of cultivated land, and immense pastures, where horses, cattle, and herds of buffaloes, graze, and water-fowls (*folaghe*) start up with a rustling noise; towards the sea are great forests. The air, however, particularly in some seasons of the year, is yet very unwholesome; and hence the pale, sallow countenances of the few inhabitants, who are occupied mostly with hunting and fishing, and occasionally with highway robberies, when the fever to which they are subject permits them. The chief work on this subject is Prony's *Déscription hydrographique et historique des Marais Pontins* (according to their condition in the year 1811 to 1812); (Paris, 1823, 4to., with an atlas, folio.)

Ponton, or **Pontoon**, in war, denotes a little floating bridge made of boats and planks. The ponton is a machine consisting of two vessels at a little distance, joined by beams, with planks laid across for the passage of the cavalry, the cannon, infantry, &c., over a river, or an arm of the sea, &c.

Pontoppidan, Eric, the younger, born at Aarhuis, in 1698, died in 1764, was bishop of Bergen, and wrote many historical and theological works, and also some Essays upon the Norwegian Language, and an Essay on the Natural History of Norway (transl. into English, Lond., 1755).

Pontus, in Asia Minor (so called from the sea on which it lay); the country from the Halys to Colchis, or the Pontic Cappadocia, as it was formerly joined with Cappadocia. The whole of Cappadocia was divided by the Persians into two satrapies, whence there arose, under the Macedonians, two distinct kingdoms. The oldest inhabitants were Tibarenes and Chalybees, not Chaldæans. Ritter (in his *Vorhalle*) thinks they were natives of India, and particularly descendants of the Buddhists at a period previous to the Brahmans. A son of the Persian king Darius, Artabazes, held these satrapies as a vassal, with the right to transmit them as an inheritance to his posterity. One of his successors, Mithridates, assisted the younger Cyrus, and refused to pay tribute to Artaxerxes. His son, Ariobarzanes I, made himself independent during the general insurrection of the governors of Asia Minor against Artaxerxes II. Mithridates II, who reigned B. C. 337, transferred his kingdom voluntarily to Alexander. Afterwards, in the division of his empire, in 322, it fell to Antigonus, who having attempted the death of Mithridates, the latter fled to Paphlagonia, where he found adherents, and successfully main tained himself. His successor, Mithridates III, enlarged his paternal kingdom by conquests. His son, Mithridates IV, drove back the Gauls, but was obliged to conclude the war against Sinope, because the Rhodians rendered assistance to this city. Pharnaces I at length took possession of Sinope, and made it his residence. Mithridates Euergetes, father of the celebrated Mithridates, aided the Romans in the third Punic and in the Pergamian war, and received from them Phrygia Major. He was murdered in 124. His son, Mithridates (q. v.) the Great, succeeded him, and carried on bloody wars with Rome until his death; at last he submitted to Pompey, and killed himself, 64 years B. C., from despair. His son Pharnaces obtained only the Bosphorus, and, when he attempted to conquer again his paternal kingdom, was vanquished by Cæsar, and put to death by Asander, who had made himself king of Bosphorus. Still his son Darius received through Antony a part of Pontus. Polemo, who at the same time possessed the Bosphorus, Asia Minor and Colchis, was his successor. After the death of his widow, Pythodoris, Polemo II succeeded, as king of Pontus, A. D. 39. Nero took Bosphorus from him, and Pontus became, after Polemo's death, a Roman province. When the Latins, in 1204, again conquered Constantinople, Alexius Comnenus founded a new kingdom in Pontus, which remained until Mohammed II united it, in 1461, with his great conquests.

Pontus; son of Earth, and elder brother of Oceanus. (See *Oceanus*, and *Neptune*.) By his mother, he had Phorcys, Thaumas, Nereus, &c.

Pontus Euxinus; the ancient name for the Black sea. (q. v.) According to some, its Greek name, Ευξεινος ποντος (signifying *hospitable sea*), was given it on account of its beautiful scenery and fruitful coasts; according to others, it was at first called *Axenus* (αξεινος, inhospitable), on account of the barbarous character of the inhabitants along its shores; but, as these were softened by commercial intercourse, its name was changed to *Euxinus*.

Pooh; an Egyptian god. (See *Hieroglyphics*, vol. vi, p. 321.)

Poolo (from the modern Greek for *little*, from the ancient παυλος) is often found in geographical names, as *Poolo Samo* (Little Samos). *Poolo* is often used as a diminutive; for instance, *Mariapoola* (little Mary).—In the Malay languages, *poolo* signifies an island.

Poor, Poora (*city*, in Sanscrit); the termination of numerous geographical names in India east of the Ganges, as *Rajapoor* (royal city).

Poor's Rate is the name given in England to the taxes raised for the aid or support of those who cannot support themselves. In the year 1830, the sums expended in England and Wales for the support of the poor out of the moneys levied in the counties, amounted to 6,553,433 pounds. (See *Pauperism*.)

Pootra (in Sanscrit, *son*); a word appearing in many geographical names, as *Brahmapootra* (son of Bramah).

Popayan; a city of New Grenada, situated in a large and fertile plain, watered by the Cauca, and lying at the foot of the volcanic Purace. It is about eighty leagues south-west of Bogota, and eighty-five north-east of Quito; lat. 2° 26′ north; lon. 76° 39′ west. It is prettily built, and its elevation above the sea (5750 feet) renders the climate mild. Population, 25,000. It suffered much during the war of Colombian independence, and, in 1827, was almost entirely overthrown by an earthquake, which was accompanied by an eruption of the Purace and an overflow of the Cauca.

Pope, Alexander, a celebrated English poet, was born May 22, 1688, in Lombard street, London, where his father, a linen-draper, acquired a considerable fortune. Both his parents were Roman Catholics. Soon after the birth of his son, who was of very delicate constitution, small, and much deformed, the father of Pope retired from business to a small house at Binfield, near Windsor Forest; and, on account of his attachment to the exiled king, not choosing to vest his property in the public securities, he lived frugally on the capital. The young poet was taught to read and write at home, and, at the age of eight, was placed under the care of a Catholic priest, named Taverner, from whom he learned the rudiments of Latin and Greek. Being fond of reading, he became acquainted, at this early period, with Ogilby's version of Homer, and Sandys' translation of Ovid's Metamorphoses, which books first turned his attention to poetry. He was successively placed at two other schools, the first at Twyford, and the second at Hyde-park-corner, where he formed a play taken from Ogilby's Homer, intermixed with verses of his own, and had it acted by his school-fellows. About his twelfth year, he was taken home, and privately instructed by another priest; and to this period is assigned his earliest printed poem, the Ode on Solitude. He subsequently appears to have been the director of his own studies, in which the cultivation of poetry occupied his chief attention. He particularly exercised himself in imitation and translation, of which his versions of the first book of the Thebais and of the Sappho to Phaon, made at the age of fourteen, afford a remarkable testimony. He was sixteen when he wrote his pastorals, which procured him the notice of several eminent persons. His Ode for St. Cecilia's Day and Essay on Criticism were his next performances of note, the latter of which was written in 1709, and published in 1711, in which year, also, appeared his Elegy on an Unfortunate Lady. He became embroiled with Ambrose Philips in consequence of an ironical comparison of that writer's pastorals with his own in the Guardian, and with the irascible critic John Dennis, owing to a humorous allusion to him under the name of *Appius*, in the Essay on Criticism. The Elegy on an Unfortunate Lady was followed by the Rape of the Lock, grounded on a trifling incident in fashionable life. In this production the poet displays admirable vivacity and the most polished wit, but its imaginative power is chiefly conspicuous in the exquisite machinery of the sylphs, wrought into it as an afterthought; for the poem first appeared without it. This addition was opposed by Addison—a piece of advice which Pope subsequently, upon no very direct evidence, attributed to literary jealousy. He next published the Temple of Fame, altered and modernized from Chaucer, which was followed, in 1713, by his Windsor Forest, commenced at sixteen. In the same year, he published proposals for a translation of the Iliad, by subscription, which were received with great encouragement; and the first volume, containing four books, appeared in 1715 (in 4to.). An open breach with Addison preceded this publication, owing to an alleged jealousy on the part of the latter, to whom a rival translation of Homer, published under the name of Tickell, was attributed by Pope. Whether by Addison or Tickell, the rival version soon sank before that of Pope, who was enabled, by the great success of his subscription, to take a handsome house at Twickenham, to which he removed with his father and mother. About this time, he wrote his impassioned Epistle from Eloïsa to Abelard, one of the most vivid and impressive of all amatory poems. In 1717, he republished his poetry in a quarto volume, to which he prefixed an elegant preface, and in 1720, completed the Iliad. In 1721, he undertook the editorship of Shakspeare's works—a task for which he was wholly unfit; and a severe castigation from Theobald laid the foundation of a lasting enmity between them. With the assistance of Broome and Fenton, he also accomplished a translation of the Odyssey, the subscription to which brought him a considerable sum. In the mean time, he had formed a friendship with Martha Blount, the daughter of a Catholic gentleman near Reading, who became his intimate *confidante* and companion through life. A sort of literary flirtation also commenced with the celebrated lady Mary Wortley Montagu, which, after much intercourse and correspondence, terminated (see *Montagu, lady Mary Wortley*) in the bitterest enmity. In 1727, he joined Swift in a publication of Miscellanies, in which he inserted a treatise Of the Bathos, or Art of Sinking, illustrated by examples from the inferior poets of the day. In 1728, he sent out the three first books of his Dunciad, a mock-heroic poem, the object of which was to overwhelm his antagonists with ridicule. It is a finished example of diction and versification, but displays much irritability, illiberality and injustice. Personal satire, to which he was first encouraged by bishop Atterbury, appears in most of his subsequent productions. Being particularly connected with the tory party, he had become intimate with lord Bolingbroke, to whose suggestion the world is indebted for the Essay on Man, first published anonymously in 1733, and the next year completed, and avowed by the author. This work stands in the first class of ethical poems. It was followed by Imitations of Horace, accompanied by a Prologue and Epilogue to the Satires, and by Moral Epistles or Essays, which exhibit him as a satirist of the school of Boileau, with more spirit and poetry, and equal causticity. The persons whom, in these works, he treats with most severity are lady Mary W. Montagu and lord Hervey. Curll, the bookseller, having published some letters written by Pope, the latter affected great anger; yet there is some evidence to countenance the notion that he contrived the plot himself, in order to form an excuse for the publication of a quarto volume of letters, in his own name, for which he took subscriptions. They are elegant and sprightly, although studied and artificial; but, as many characteristic epistles are given from those of his correspondents, the collection is interesting and valuable. In 1742, at the suggestion of Warburton, he added a fourth book to his Dunciad, intended to ridicule useless and frivolous studies, in which he attacked Colley Cibber, then poet-laureate. Cibber retaliated by a pamphlet, which told some ludicrous stories of his antagonist, and so irritated the latter, that, in a new edition of the Dunciad, he deposed Theobald, its original hero, and promoted Cibber in his place, who, although a great coxcomb, could scarcely be deemed a dunce.—An oppressive asthma began now to indicate a commencing decline; and, in this state of debility, he was consoled by the affectionate attention of his friends, and particularly of lord Bolingbroke. When the last scene was approaching, he allowed one of his intimates, the historian Hooke, himself a Catholic, to send for a priest, not as essential, but becoming; and, soon after, quietly expired, May 30, 1744, at the age of fifty-six. He was interred at Twickenham, where a monument was erected to him by bishop Warburton, his legatee. Both the moral and poetical character of Pope has, within these last few years, been assailed and defended with peculiar animation. Vain and irascible, he seems to have been equally open to flattery and prone to resentment; but one of his greatest weaknesses was a disposition to artifice, in order to acquire reputation and applause, which is justly deemed indicative of littleness of mind. He was not, however, incapable of generous and elevated sentiments, and was as firm in his attachments as implacable in his dislikes. He had always a dignified regard to his independence, which, in one to whom money, high connexions, and the superfluities of life, more especially the luxuries of the table, were by no means indifferent, is the more remarkable. He has been accused of meanness towards his literary coadjutors; but certain stories, of a nature to impeach his integrity, are now no longer believed, especially as something like an indisposition to do him justice, either as a poet or a man, has been manifest in those who related them. As a poet, while his claim to invention is bounded, the endeavor to set him aside altogether, in compliment to certain metaphysical distinctions in regard to the primary sources of poetic feeling, is factitious and futile. No English writer has carried further correctness of versification, splendor of diction, and the truly poetical art of vivifying and adorning every subject that he touched. His Rape of the Lock, and Epistle from Eloïsa to Abelard, are alone sufficient to impeach the exclusive theory which would deny him the rank and powers of a poet, leaving his wit, his brilliancy and his satire to be ranked as they may be. Of the various editions of Pope's works, it is only necessary to mention that of Warburton (excluding the Homer, 9 vols., 8 vo.), and those of Johnson, Warton and Bowles (the last in ten vols., 8 vo., 1806).

Pope (from the Greek παπας, father; see *Papas*) was the title of the bishop of Rome, long before he possessed the authority which is now connected with the name. From the end of the fourth century, he was the first among the five patriarchs or superior bishops of Christendom; for the circumstance that Rome was the ancient capital of the kingdom, and, according to tradition, the last dwelling-place of the apostle Peter, had long since given to him, as pretended successor of Peter (q. v.), an extensive authority, but no peculiar jurisdiction over foreign dioceses. This, however, the popes obtained by the wealth of the Roman church, which had property in most other dioceses, by arbitration in ecclesiastical contentions, and by availing themselves of many opportunities favorable to the extension of their influence. A provincial synod at Sardica, in the year 344, and a decree of the emperor Valentinian III, in 445, had, indeed, acknowledged the bishop of Rome as primate, and as the last tribunal of appeal from the other bishops; but even in the West, where alone these edicts had the force of law the measures of the popes, until the eighth century, often met with violent opposition. About this time, several circumstances contributed to open to them the way to supreme control over all churches. (See *Hierarchy*.) Among these were the establishing new churches in Germany, which, like those of Britain at an earlier period, being founded by their missionaries, were at first subject to their power; the political confusion, and the change of government in Italy and France; the decretals of the pretended Isidore (q. v.), forged between 830 and 850, probably by Benedict, a deacon of Mentz (which, in those times of ignorance, contributed much to support the claims of the Roman church to exercise supreme power, by supposititious letters and statutes of former bishops of Rome, dated back to the first centuries); the schism between the Eastern and Western churches, which bound the latter still more closely to the popes, as their leaders; the gradations of ecclesiastical rank, every where introduced by the ambition of the popes, all derived and gradually descending from them, who had usurped the highest place; and, finally, the personal superiority of some popes over their contemporaries. Thus Leo the Great (q. v.), in the fifth century; Gregory I, called the Great, a zealous, good, and able man, in the sixth century; and Leo III, who crowned Charlemagne, in the eighth century, had obtained for the papal title an authority which the patriarchs of the East could not attain, and against which the power of princes availed little. The story of the female pope, Johanna or Joan, an English woman, educated at Mentz and Athens, who, concealing her sex, rose by her learning and talent from the office of a notary at Rome to the papal chair, but, after a reign of two years and a half, was detected by becoming a mother, is a fable and satire. There were, indeed, unworthy popes during the middle ages; but, after the brilliant victory which Nicholas I (who was first solemnly crowned) obtained over Lothaire, king of Lorraine, in the affair of a divorce in 865, and over the bishops of Treves and Cologne, whom he deposed by his papal authority; and after the example which John VIII had given, in 875, of a disposal of the imperial crown, which he conferred on Charles the Bald,—the power of the popes could receive but little injury from the violence and corruption which prevailed in the papal see above a hundred years, beginning from the influence of the Tuscan counts at Rome, under Sergius III, in 904, and continued by the wicked and licentious favorites and relations of the infamous princesses Theodora and Marozia (one of whom, John XII, in 956, while but eighteen years old, and another, Benedict IX, in 1033, a boy of twelve years, obtained the dignity of pope), and even from the scandalous circumstance that, in 1045, three popes, chosen by means of bribery, were living together in Rome. The rudeness of the age concealed the scandal of such things. In the midst of all this darkness, a ray of light appears in the reign of the excellent Sylvester II (q. v.), between 999 and 1003, who was one of the most learned men of his time, and whom the world regarded as a magician. The troubles arising during the decline of the Carlovingian dynasty in France and Germany offered an extensive and continually enlarging field of action to the ambition of the popes; and their dignity and independence of the nobles and people of Rome, which they had often lost during the contentions of factions, were regained by them by the constitution of Nicholas II, in 1059, placing the right of election to the papal chair in the hands of the cardinals (see *Conclave*), to the exclusion of the laity. After this, a succession of good rulers, of great talents and excellent character, sat upon what was then the first throne in Christendom;—Gregory VII (q. v.), who surpassed them all in spirit and in power, and who began to carry through, with wonderful perseverance, the project of universal dominion; Urban II, who was several times driven from Rome by the antipope Clement III, but who, from 1088 to 1099, ruled with extensive influence and extraordinary vigor; Alexander III, who, during his reign, between 1160 and 1181, survived two rivals, and overcame a third, who brought the kings of England and Scotland to unconditional obedience in religious matters, who made the emperor Frederic I hold his stirrup, and confirmed the system of the election of popes; and Innocent III, whose reign, between 1198 and 1216, raised the papal see to the highest degree of power and dignity. What the popes in earlier times had only attempted in peculiar circumstances, these great men, so superior to their age, made the settled usage, by a regular series of bold usurpations and persevering efforts. They united the clergy of western and central Europe closely to the papal see, by the introduction of a new form of oath, by the law of celibacy, and by the law of investiture (q. v.), which broke the union of bishops with their temporal princes, and, under Innocent III, was extended to a power of disposing, at pleasure, of all the dignities and benefices of the church. By means of their legates and nuncios (q. v.), they obtained the bishop's right of deciding in ecclesiastical and matrimonial affairs, and the exclusive right of canonization; and they thus made the popes the sole fountain of ecclesiastical dignity and power in western Christendom. By eventually assuming the sole right of convening councils and national synods (whose decrees became valid only by being ratified by the pope), and by maintaining, with more and more boldness, their claims to infallibility, they at length obtained complete dominion over the church. Of the orders of monks, especially of the mendicant orders, they created a spiritual army, who, having in their hands the inquisition, the right of hearing confessions, and of preaching, together with the public superintendence of schools and universities, became the most useful instrument of their policy, and one of the strongest supports of their power. The success of these advances towards unlimited spiritual dominion, gave them courage to strive also after temporal power. But the claims of the popes to worldly dominion are of much later origin than the historians of the court of Rome have maintained. Constantine the Great gave them merely some buildings and estates in and near Rome. By the gift of Pepin (see *Church, States of the*) the pope obtained merely the *dominium utile*, that is, the use of lands intrusted to him. In this way he became, in a manner, a vassal of the Frankish kings, and afterwards of the German emperors, who exercised, without opposition, the right of sovereignty over the papal dominions, and, until the twelfth century, suffered no election of pope to take place without their ratification. Innocent III first established the rule that Rome, the Marches, and the hereditary possessions of Matilda (q. v.), should do him homage, as lord paramount, in 1198; and thus vanished the last shadow of the power of the emperors over Rome and the pope. Favorable circumstances had already made several kingdoms tributary to the papal see. England, from the time of its conversion to Christianity, was thus dependent upon them; in like manner, Poland and Hungary, from the eleventh century, Bulgaria and Aragon, from the beginning of the thirteenth, and the kingdom of the Two Sicilies (whose Norman kings had been vassals of the pope), from 1265, when Clement IV gave it to the house of Anjou through hatred towards the house of Hohenstaufen. Even the East would have fallen under the power of Rome, if the success of the crusades (which had given rise in the West to much confusion in regard to the rights of citizens and private property, and thereby promoted the influence of the pope) had been less transitory. Innocent III dared to depose and proclaim kings, as, for instance, John of England, and to threaten the whole world with excommunication. The emperor Otho IV called himself such by the grace of God and of the pope. Kings were called *sons of the pope;* and the fear of the terrible consequences of the interdict, which they pronounced, as vicars of Christ, upon disobedient princes and their kingdoms, the rebellious spirit of the barons, the ill regulated constitution of states, and the great want of laws, subjected the rulers of those times to the authority of a lord, whose court was the cradle of modern politics, and whose power and influence were irresistible, because supported by public opinion and by superstition. It was with reason, then, that popery, at that time, was called a *universal monarchy;* the cardinals being counsellors; the legates in the different kingdoms of Europe, viceroys; the archbishops and bishops, governors and lieutenant-governors; the priests, ministers of police and of the finances; and the religious orders, the standing armies of the Roman pastor; who thus had at his beck 300,000 servants of different ranks, scattered among the different nations, entirely devoted to his interest, and powerful by the arms of religion and fanaticism. In fact, this priestly government did good by accustoming the rude princes and people to laws and Christian manners; and, at a time when rights were first beginning to be understood, its inconsistency with true independence was not felt. France alone, which had acquired more consistency and power than the other monarchies of Europe, by the subjugation of the great vassals, and the reduction of their territories under the royal government, first successfully resisted the popes. In Philip the Fair, Boniface VIII (q. v.), one of the boldest and most able popes, found a master, and his successors, during their residence at Avignon, between 1306 and 1376, remained under French influence. The independence of the popes visibly suffered from the circumstance that they were now bound to a particular political party, though they continued to exercise, over all the Christian countries of the West, the power which their arts and perseverance had obtained. Their dignity sunk still lower when, in 1378, two rival popes appeared—the Italian Urban VI, and a count of Geneva, chosen by the French cardinals, who took the name of *Clement VII.* Europe was divided by their quarrel, the Italian being supported by Italy, Germany, England and the northern kingdoms, the French pope by France, Spain, Savoy, Lorraine and Scotland; and the schism long remained. The public sale of offices, the shameful extortions and the low artifices, which most of these rival popes used against each other, gave rise, in England and Bohemia (see *Huss*), to much complaint, and to demands for a reform in the state of the church. The council of Constance had, indeed, succeeded in putting an end to the great schism, by deposing both of the rivals; but pope Martin V (q. v.), who was chosen, in 1417, in their place, did not correct the abuses which had grown up under his predecessors, and even the most express decrees for reform, passed by the council of Basle, were rendered nugatory by the artifices and the perseverance of Eugene IV, of the house of Ursini, who was pope between 1431 and 1477. He had gained the friendship of France, in 1438, by the pragmatic sanction, which laid the foundation of the freedom of the Gallican church; and the negotiations of Æneas Sylvius, ambassador of Frederic III, with him and his successor, the excellent Nicholas V, a friend to ancient literature, and the protector of the learned exiles from Greece, effected the concordate of Vienna, in 1448. Why the grievances of the German nation were so little remedied by this instrument, while the interest of the pope was carefully attended to, the German princes, whom the eloquence of the cunning negotiator Æneas Sylvius had induced to accept it, first perceived when he was chosen cardinal, and, in 1458, pope, under the name of *Pius II*. In this concordate, the popes obtained the confirmation of the annates, of the right of ratifying the election of prelates, and, among many other privileges, that of the *pope's months*, so called, or the right of conferring benefices (which they exercised alternately with the founders), not on the occurrence of vacancies, but on particular months, of which six in every year were reserved to the pope. By a general extension of this privilege, to which, under different pretences, the other Christian kingdoms were obliged to submit, the popes, in the fifteenth century, had gone so far, that full half of the ecclesiastical revenues of the West flowed into their coffers, under various pretences. Assistance against the Turks was the most common pretext; but rarely were any of the immense sums thus collected so employed. It was necessary to buy the favor of the parties in Rome, among which the old families of Colonna and Ursini had long been rivals; and so much was spent on their relations (see *Nepotism*), that very little remained for the common good of Christendom. In care for his family, no pope ever surpassed Alexander VI (q. v.), between 1492 and 1503, whose policy and whose private life were equally strangers to morality and religion. His successor, Julius II, between 1503 and 1513, employed all his powers in politics, and in a war with France, in which he commanded his own army, but was obliged to fly before Bayard. Fortunately for him and for his successor, Leo X (q. v.), Maximilian I was prevented by circumstances, and finally by death, from uniting upon his own head the papal and imperial crowns. The circumstance that Austria, France and Spain were fighting for Lombardy and Naples, and, therefore, sought alternately the favor of the pope, had caused the latter to rise anew in political importance towards the end of the fifteenth century; but the spirit of the times was acquiring an irresistible strength, and the policy of Leo X was of no avail against it. Luther, Zuinglius and Calvin were the heralds of an opposition which tore almost half of the West from the popes, while the policy of Charles V was at the same time diminishing their power. What the ages of ignorance had allowed to the pope, the council of Trent, indeed, now ratified; and the society of the Jesuits came forward as the guards of his throne, striving to erase all traces of the reformation in the states which had remained Catholic, and to regain by missions among the heathen what had been lost in Europe: yet neither this new support, nor the policy of artful popes, such as Clement VII, between 1523 and 1534 (whom Charles of Bourbon, the general of the emperor, drove, in 1527, into the castle of St. Angelo), and Paul III, between 1534 and 1549, who gained for his family Parma and Piacenza; nor the monkish devotion of Paul IV, between 1555 and 1559; nor the moderation of Pius IV, between 1559 and 1566, who condescended to grant the cup to the Bohemian Hussites; nor the severity of Pius V, between 1566 and 1572 (who offended both princes and people by his bull *In cœna Domini*, worthy of his previous character as a proud Dominican, and furious persecutor of heretics, although his severe austerity obtained him the honor of canonization); still less the useful activity of Gregory XIII, between 1572 and 1585, who gave to the world the amended calendar (Gregorian); the magnanimity and wisdom of Sixtus V (q. v.), between 1585 and 1590; the good fortune of Clement VIII (Aldobrandini), between 1592 and 1605, who, in 1597, added Ferrara to the States of the Church; the learning of Urban VIII, between 1623 and 1644, who added Urbino to his dominions, and obliged Galileo to abjure his doctrine of the motion of the earth round the sun,—could restore the old authority of the papal throne. In vain did the court of Rome employ the language of Gregory VII and Innocent III; even in Catholic states, the distinction between ecclesiastical and political affairs had been perceived so clearly, that the influence of the popes upon the latter was now very limited. Since the middle of the sixteenth century, no German emperor had been crowned by a pope. The princes, who had learned his policy, withdrew themselves from his authority. The national churches obtained their freedom, in spite of all opposition, and the peace of Westphalia, which the papal see never acknowledged, gave public legality, guarantied by all the powers of Europe, to a system of toleration which was in direct contradiction to the papal doctrines. Under such circumstances, the question no longer was, how to extend the papal authority, but how to prevent its utter destruction; and the vicar of Christ, who, when he began to call himself servant of servants, was lord of lords, was obliged to play the part of a suppliant, who claims compassion and toleration, rather than obedience. Jansenism, also, took from the popes a considerable part of the Netherlands; their bulls were no longer of avail, beyond the States of the Church, without the consent of the sovereigns, and the revenues from foreign kingdoms grew smaller and smaller. In France, and soon after in Germany, they became the objects of ridicule; and the excellent men who occupied the pontifical chair in the eighteenth century, the learned Lambertini, from 1740 to 1758 (see *Benedict XIV*), and the enlightened Ganganelli, from 1769 to 1774 (see *Clement XIV*), were forced to expiate the guilt of their predecessors, and sought to obtain by patience, condescension and personal merit, the esteem which the others had haughtily claimed. Still greater misfortunes fell upon their successors, Pius VI, from 1775 to 1798, and Pius VII, 1800 to 1823. The first, after a bitter experience of the progress of knowledge, just when the death of Joseph II had inspired him with new hopes (see *Nuncio*), was witness of the revolution, which tore from him the French church, and deprived him of his dominions. The other was forced to buy his personal freedom, and the possession of his diminished states, by an equivocal concordate with Bonaparte, in 1801, and by much personal humiliation, and lost them both again in 1809. He owed his restoration, in 1814, not to the excommunication which he had pronounced against Napoleon, but to a coalition of temporal princes, among whom were two heretics (the English and Prussian) and a schismatic (the Russian). Nevertheless, he not only restored the inquisition, the order of the Jesuits, and other religious orders, but advanced claims and principles entirely opposed to the ideas and resolutions of his liberators. The return of this pope to the spirit of the eleventh and twelfth centuries agreed with what was always the principal maxim of the Roman court, "never to give up the slightest of its claims, but to wait only for opportunities." When the archives of the popes were carried to Paris, in 1809, among other surprising things, a practice came to light which the popes had, of declaring null and void, by secret mental reservation, the contracts which were made in public. Thus Alexander VII, February 18, 1664, made such a reservation with regard to the treaty of Pisa, of the 12th of the same month, and Clement XIII, September 3, 1764 (see *Clement XIII*), with regard to the banishment of the Jesuits from France. Pius VII openly declared against the tolerance of the philosophic sects, against Bible societies, and translations of the Bible. (See *Pius VII*.) In the mean time, there appeared in the French and German Catholic churches, a spirit of freedom, and an increasing wish for an independent national church, which is very visible in the negotiations that preceded the conclusion of the last concordate. (Respecting the temporal dominions of the pope, see *Church*, *States of the*.)

Pope (by a Catholic). [Having given in the preceding article the Protestant views of the papal history, we shall now give the views of a German Catholic on the origin and character of the papal power.] The pope is the head of the Catholic hierarchy. It was necessary that the power of the church should be concentrated in some one, whose especial care it should be to provide for the maintenance of the Christian faith, and whatever is connected with it. Christ ordained this unity of power on that occasion when one of the apostles, first of all, acknowledged the divinity of his Master. When walking with his apostles, he turned and said: "But whom say ye that I am? And Simon Peter answered and said, Thou art Christ, the Son of the living God. And Jesus answered and said to him, Blessed art thou, Simon Bar-jona; for flesh and blood hath not revealed it unto thee, but my Father, which is in heaven. And I say also unto thee, that thou art Peter (which means a *rock*); and upon this rock will I build my church; and the gates of hell shall not prevail against it. And I will give unto thee the keys of the kingdom of heaven; and whatsoever thou shalt bind on earth, shall be bound in heaven; and whatsoever thou shalt loose on earth, shall be loosed in heaven." (*Matthew* xvi, 13—19.) However clear this passage may be, it has not been without mistaken interpreters, who have perverted the sense, saying that at the words "on this rock," Christ pointed with his finger to himself. The learned Michaelis rejects this explanation of some of his Protestant brethren, saying that the finger is not the finger of Christ, but that of the contentious interpreter. The power to bind and to loose, and the office of preaching Christianity, were afterwards, indeed, given to all the other apostles; but no other one is declared to be the rock upon which the church should be built. This rock was one only, Simon, son of Jonas, called *Peter*. After his resurrection, Christ appeared for the third time to his disciples assembled at the sea of Tiberias. "So when they had dined, Jesus saith to Simon Peter, Simon, son of Jonas, lovest thou me more than these? He saith unto him, Yea, Lord; thou knowest that I love thee. He saith unto him, Feed my lambs. He saith unto him again the second time, Simon, son of Jonas, lovest thou me? He saith unto him, Yea, Lord; thou knowest that I love thee. He saith unto him, Feed my sheep. He saith unto him the third time, Simon, son of Jonas, lovest thou me? Peter was grieved, because he said unto him the third time, Lovest thou me? And he said unto him, Lord, thou knowest all things; thou knowest that I love thee. Jesus saith unto him, Feed my sheep. Verily, verily, I say unto thee, when thou wast young, thou girdedst thyself, and walkedst whither thou wouldest; but when thou shalt be old, thou shalt stretch forth thy hands, and another shall gird thee, and carry thee whither thou wouldest not. This spake he, signifying by what death he should glorify God. And when he had spoken this, he said unto him, Follow me." (*John* xxi. 1—19.) That these repeated assurances of love, and these repeated commands to feed the sheep, had some peculiar signification, and that, together with the passage in Matthew xvi, 13—19, they were intended to show the supremacy of Peter, was always taught by the fathers of the church. In other passages of holy writ, this preference of Peter is also shown. Passages like this, "Simon, and those with him" (*Mark* i, 36); "Peter, standing with the eleven" (*Acts* ii, 14); "Peter, arising in the midst of the brethren" (*Acts* i, 15), obviously refer to the precedence granted to him in other places. In the first synod of the apostles at Jerusalem, the superior rank of Peter cannot be mistaken. (*Acts* xv. 17.) This precedence was not merely an honor, but had for its object the unity of the church; it was a true official power. The power which Christ gave to his apostles did not cease with their death, but was transmitted to their successors. This is what all Christian antiquity has taught, and this was needed by the church, which was a permanent institution, requiring continual direction. This power of the first of the apostles was also exercised by his successor. This successor was, as all antiquity tells us, the bishop of Rome. This supremacy of the Roman bishop has, with the lapse of time, unfolded itself more and more, and sometimes taken a wrong direction; but it was first exercised by Peter; it is as old as Christianity, and did not originate in subsequent times. As far back as the first century, we find traces of the power exercised by Clement, bishop of Rome, as successor of Peter. He appeased the contentions of the restless Corinthians, part of whom requested his assistance. Recourse was had to him, although other churches were situated nearer, as those of Smyrna, Ephesus, &c., which were likewise superintended by disciples of the apostles, and, in all probability, while the apostle John was yet living. Clement not only sharply reproved the Corinthians, but declared to them that if they did not submit to his commands, they should be regarded as disobedient. This epistle was read in many churches until the time of Eusebius. (Eusebius, *Historia Ecclesiæ*, l. iii. c. 12.) At the end of the first century, a certain Dionysius was sent by Clement on a mission to Gaul, and in fact undertook the mission at his order. In the second century, Marcion travelled from distant Pontus to Rome, that he might there be again admitted into the society of the church, from which he had been excluded by his bishop. Cerdo was restored to his place, in Rome. St. Irenæus said, "It is necessary that the whole church, that is, believers every where, should hold to this church (the Roman), on account of its great superiority, for the apostolic tradition has been preserved in this church." In another place he says that he should regard as heretics, schismatics, and obstinate persons, all those, wherever they might be, who should deny the supremacy of the successors of Peter over the church. In the third century, Origen, Cyprian, and many others, appealed to Rome. Thus many things in the time of primitive Christianity concur to prove the supremacy of Rome. The church, in its constitution, is like an association of states, at whose head stands the pope; his government cannot be called, however, a monarchy, but resembles more the imperial form. As is commonly the case in such united governments, so in the spiritual constitution, the power of him who should control all, is sometimes too great, and sometimes too feeble. The power of the pope, at first lawful, afterwards increased with the lapse of time; and the principle was generally adopted, that the bishops of the church were merely his assistants—a principle from which proceeded the forged decrees of Isidore, belonging to the ninth century, where it is not first advanced, but taken for granted as a well established fact. The splendor and power of the papal see was greatly increased also by its union with the emperors, in the middle ages. This union was both favorable to the civilization and the peace of Europe, and beneficial to the spiritual authority of the pope; and at last gave to the pope supremacy over the Western world. The quarrels of the popes with temporal rulers not only caused the downfall of the temporal power of the holy see over the European states, but, in the reaction which they produced, even gave to the rulers great influence over the church. The spiritual power of the popes was now brought back to its former limits. Abuses, which the possession of power renders so easy, had caused a general desire of a reformation, both in the head and members of the church. The council of Constance, in 1414, declared itself competent to undertake this reform, and actually deposed two rival popes; and the decrees of the council at Basle were still more energetic. The discovery of the forgery of the decretals of Isidore—a natural consequence of a more attentive study of history in modern times—by the *centuriatores* of Magdeburg—and the ideas which the reformation introduced—contributed to circumscribe, within just limits, the spiritual power of the pope. In the eighteenth century, the investigations of Febronius (the suffragan bishop of Treves) mainly contributed to shake the foundation of many of the adventitious rights of the pope. This is the place to explain the system of the Catholic canonists with regard to the power of the pope. First, of his influence in temporal concerns. The canonists of the middle ages derived from the example of Gregory VII, and others, a right of the pope to immediate interference in worldly matters. Their argument was a very simple one: The church is the highest of all institutions for the good of men, and all other merely temporal institutions should be subject to it; the head of this institution is the vicar of Christ, made such by divine appointment. Peter was the first, and his successors have inherited his power. Like Peter, the popes have held the double sword (the symbol of temporal and spiritual power), and with this, the right of subjecting every thing to the objects of the church, as the highest moral institution, and of ruling, either in concurrence with the temporal power, or in preference to it, since the eternal is superior to the temporal, and the objects of the first are more exalted than those of the last. Bellarmin afterwards varied from this opinion, asserting an indirect power of the pope over temporal affairs, as, for instance, the right of reducing within proper limits, for the salvation of his soul, any one who made a bad use of temporal power. The present age, however, believes neither in the direct nor the indirect power of the pope over temporal affairs, and no one any longer defends that opinion. As to the spiritual power of the pope, all the true Catholic canonists agree that the supremacy of Peter and his successors (and not only the dignity, but also the jurisdiction) are of divine appointment. That the seat of supreme power is now at Rome, is accidental; we do not affirm, however, that it can be transferred from Rome without the consent of the whole church. This power is of divine appointment, and certain rights are essential to it; those, for instance, without which its object, unity in the church, could not be attained. Other rights have been accidentally acquired in the course of time; they have a historical foundation, but they are not necessary to the existence of the supreme power. The former, therefore, are called *essential*; the latter, *adventitious*. The essential rights are, I. The right of superintendence over the whole church. To this belong, 1. the right of requiring from all bishops an account of the state of their churches (*jus relationum*); both in the Eastern and Western churches, we see a continual acknowledgment of this right in the earliest times; the church ordained in the council of Trent, that the bishops should, every five years, send to the pope an account of the state of their dioceses (*relatio de statu*); 2. another right is that of sending legates into the different countries of Christendom; in cases for which the requiring of reports was insufficient, it became necessary that information should be obtained by means of legates in the country and on the spot; 3. the right of convoking general councils;

of holding the presidency there, and of ratifying the decrees; 5. the right of pronouncing provisional sentences, in disputes on matters of faith. Another class of essential rights was, II. The right of superintending the observance of the laws of the church. To this belong, 1. the right of passing new laws, and of enforcing the observation of those which already exist; the bishops have a just right to protest against new laws, and they do not become binding until the whole church has accepted them; 2. the right of dispensing with existing laws—a right which, as history tells us, was exercised beyond what was necessary, but which in general was indispensable, as the laws could not extend to every case; 3. the right of annulling unjust grants of episcopal dignities (*jus devolutionis*)—an essential right, and one without which the right of superintendence would be of little avail. In reality, this right was also carried too far, and was not properly limited until modern times. The adventitious rights are the following: 1. The right of censorship over all writings relating to the doctrines of the Catholic church; 2. the right of regulating the general liturgy; 3. the right of canonization, and of deciding upon the authenticity of the relics of the saints, and the degree of honor due to them; 4. the right of appointing and abolishing festivals; 5. the right of appointing fasts, and days of humiliation for the whole church; 6. the right of dispensing from vows (see *Vows*), and of declaring the invalidity of oaths obtained by fraud or violence, or of setting them aside, where other circumstances seemed imperiously to require it; 7. the right of being consulted in regard to the alienation of the property of the church; 8. the right of imposing taxes upon the clergy, or of exacting from them other contributions (*jus decimandi*); 9. the right of raising certain taxes (*annates*) for the support of the pope and his court (it has produced but a small income in modern times); 10. the right of reserving to themselves the appointment to the benefices of the church (by *mandata de providendo*, by *expectativæ*, or by *reservationes*); 11. the right of establishing and suppressing religious orders; 12. the right of confirming bishops (and coadjutors) and of deposing them (in a lawful way); 13. the right of granting dispensations; 14. the right of conferring the *pallium*. These are the adventitious rights; they can pass away by time (and many have passed away), as they grew with the lapse of time. We do not mean to say that they can be arbitrarily denied to the pope by individuals. Among the rights of the popes, which were formerly the subject of dispute, were their infallibility and supremacy over the councils,—rights which the German canonists no longer maintain. (See *Infallibility*.) The pope is likewise a temporal monarch, as the bishops of Germany formerly were. The States of the Church, like all the states of the middle ages, grew up gradually. A temporal sovereignty was necessary for the pope, as he was to be the organ of the church, the opponent of thrones, and independent of them. As man is still human, though he wear the tiara, we cannot wonder, nor is it a cause of reproach against the church, that it has produced vicious popes. But no dynasty of Europe can show that it has had, during the last few centuries, such a long series of excellent men. By the institutions connected with the papal power, care is taken that it shall be less arbitrary than that of any other ruler in Europe.

Popish Plot; a contrivance got up by Oates (q. v.) in 1678, for the purpose of bringing himself into notice, and adopted by some political leaders to promote their own party schemes. Oates pretended to have discovered a conspiracy, formed by the Jesuits and Roman Catholics, for murdering the king (Charles II), and subverting the Protestant religion; and, after some preliminary steps, he went to sir Edmondbury Godfrey, a justice of peace, and gave evidence before him of all the articles of the pretended conspiracy. Among the persons accused was Coleman, secretary to the duchess of York, among whose papers was found a correspondence with some Catholics abroad, which contained expressions of great violence and indiscretion, but nothing to countenance the notion of such a plot. In the midst of the alarm created by this pretended revelation, Godfrey was found dead in a ditch (October 17), having, probably, committed suicide; but the cry was immediately raised that he had been murdered by the papists on account of his taking Oates's evidence. Parliament met soon after this event, and the two houses immediately began to occupy themselves with examinations in regard to the plot The excitement was encouraged in parliament by artful party leaders, and the two houses voted, "that there had been and still was a damnable and hellish plot, contrived and carried on by the papist recusants, for assassinating the king, subverting the government, and rooting out the Protestant religion." The encouragement held out to Oates, who received a pension of £1200, brought forward Bedloe, a noted thief and impostor, who confirmed Oates's statements, with some additions of his own. He accused several noblemen by name of a design to raise forces in different parts of the kingdom, with which they were to join an army of 20,000 or 30,000 crusaders to be landed from Spain. Although no arms, after the most rigorous search, no ammunition, no money, no commissions, no papers, no letters, were discovered to confirm the evidence of these men, yet the story obtained general belief, and excited a general panic. To increase the excitement, Bedloe published a pamphlet, entitled, A Discovery of the horrid Popish Plot, for burning London and Westminster, &c., in which all the fires that had happened for several years were ascribed to the Jesuits. Meanwhile the pretended conspirators were brought to trial. Coleman, father Ireland, a Jesuit, and Grove and Pickering, who, it was pretended, were engaged to shoot the king, were condemned to death, on the testimony of Oates and Bedloe, and executed. The pretended murderers of Godfrey next suffered the same fate, on the sole testimony of Bedloe, and one Prance, whom he had accused of being an accomplice in the murder, and who, after many promises and threats, finally confessed his guilt. Further prosecutions took place in the following year, when several persons were executed, and a new plot, called the *meal tub plot*, from the place where the papers relating to it were found, was got up by one Dangerfield, a convicted felon. In 1680, viscount Stafford was impeached by the commons, condemned by the lords, and executed December 29, as an accomplice in the plot, on the testimony of Oates and two of his associates, Bedloe having died not long before. This was the last instance of bloodshed in this strange affair. Soon after the accession of James II (1685), Oates was tried and convicted on two indictments for perjury, and was sentenced to be whipped, on two different days, from Aldgate to Newgate, and from thence to Tyburn, to be imprisoned for life, and pilloried five times every year. (See Hume's, and particularly Lingard's, *History of England*.)

Poplar (*populus*); a genus of plants belonging to the *amentaceæ* and to the *diœcia octandria* of Linnæus. The species are trees often of large dimensions, having their buds usually covered with an aromatic and viscous substance; their flowers disposed in aments, and always appearing before the developement of the leaves; and these last alternate, rounded or triangular, serrate or dentate, and supported on long petioles, which are more or less compressed, particularly towards their summits. This conformation occasions a peculiar vibratory motion in the leaves when they are acted upon by the wind, especially remarkable in certain species called *aspens*, which appear to be perpetually agitated. About twenty species are known, all confined to the northern and temperate regions of the globe. They are soft-wooded trees, of rapid growth. The following species inhabit the U. States: The Carolinian poplar (*populus angulata*) is remarkable for the acutely angular form of the young branches, and for having its buds destitute of the viscous coating. It is a southern species, and, in the Atlantic states, is hardly found north of latitude 37°, but is abundant along the marshy banks of the large rivers of Carolina and Georgia, and especially of the Lower Mississippi, and is even found on the Missouri for 100 miles above its mouth. It sometimes attains the height of eighty feet, with a proportional diameter, and a wide-spreading summit, clothed with beautiful foliage. The wood is white, soft, and is not applied to any useful purposes. The cotton-wood (*populus canadensis*) inhabits more northern districts, and is chiefly abundant along the Upper Mississippi, the Missouri, and other western rivers, and often is the only tree which lines their banks in the vast naked regions of the north-west. In the Atlantic states, this tree is rare, and almost unknown. It grows to the height of eighty feet, with a trunk three or four in diameter: the branches are angular, though less remarkably so than in the preceding species, from which it is, besides, easily distinguished by the viscous buds: both are, however, frequently confounded under the term *cotton-wood*, and are found growing in company on the banks of the middle portion of the Mississippi. The American black poplar (*populus betulifolia*) is rare, even in the northern parts of the U. States, and by Michaux was observed only on the banks of the Hudson above Albany: probably it will be found more abundant in Canada. It is distinguished by the hairiness of the young shoots and petioles in the spring, and by the form of the leaves, which are conspicuously acuminate. The trunk is thirty or forty feet high, and about a foot in diameter. The *populus heterophylla* is found in most parts of the U. States, but is so rare as, in general, to have received no specific denomination. The trunk is sometimes seventy or eighty feet high, and two or three in diameter. The young branches are cylindrical; the leaves, while very young, are covered with a thick white down, which gradually disappears as they attain their full size, when they are often six inches in length and the same in breadth, heart-shaped, with the small lobes of the base overlapping, so as to conceal the summit of the petiole: by this character it is most easily recognised. The tacamahac, or balsam poplar (*populus balsamifera*), is a Canadian species, hardly venturing even into the coldest regions of the U. States. It is abundant in the country between Quebec and Hudson's bay, especially on the waters of the Saguenai, between lat. 47° and 49°, and extends westward beyond lake Superior. Here it frequently rises to the height of eighty feet, with a diameter of three at base. The leaves are oval and lanceolate—an uncommon form among poplars. The wood is white, soft, and is applied to no useful purpose. The heart-leaved balsam poplar, commonly, but improperly called *balm of Gilead* (*populus candicans*), is frequently planted before houses in the New England states, but has not hitherto been found growing wild in the forests, and its origin is uncertain. It attains the height of forty or fifty feet, with a diameter of eighteen or twenty inches. The bark is smooth and greenish; and the leaves are large, perfectly heart-shaped, and frequently have hairy petioles. This tree has dark-green foliage, but the irregular disposition of the branches gives it an inelegant appearance; and it, besides, renders the vicinity unpleasant at the time when the seeds are ripening, by filling the air with little tufts of light down. The American aspen (*populus trepida*) is a small tree, common in the Northern and Middle States. The leaves are broad, and somewhat heart-shaped. It is one of the species most remarkable for the perpetual agitation of the leaves. The *populus grandidentata* is chiefly found in the Northern and Middle States, and rather exceeds the preceding in dimensions. It is readily distinguished from the other American species by the large teeth of the margin of the leaves. The narrow-leaved cotton-wood (*populus angustifolia*) grows in company with the common cotton-wood, which it resembles in size and habit, about the head waters of the Missouri and its tributaries. It is remarkable for the form of the leaves, which are ovate-lanceolate, attenuate, and acute at base.—Among the more remarkable of the exotic species are, 1. The great white poplar, or albele (*populus alba*), one of the largest European trees, often growing to the height of ninety or a hundred feet, by five or six in diameter at base. It is common along the banks of rivers, and in moist places, throughout the greater part of Europe. It forms a striking feature in the landscape, not only from the majesty of its appearance, but from the contrast of the two surfaces of the leaves, the green of the upper with the pure white of the inferior. The growth is very rapid, and it lives to a great age. The wood is white, light and soft, easily worked, and takes a good polish, and is employed for a great variety of purposes in the arts. It is superior to that of the other species in fineness and strength, gives a firmer hold to nails, and is not liable to warp and split. In England, it is preferred by turners for wooden bowls, &c., on account of its peculiar whiteness, and the ease with which it is worked in the lathe. It is also useful for flooring-boards, and for making laths and packing-boxes. This tree is recommended for cultivation in America by Michaux, especially to the states east of the Hudson. 2. The asp, or aspen (*populus tremula*), is a tree of moderate size, the wood of which is inferior, but still is applied to many useful purposes. 3. The black poplar (*populus nigra*) is a lofty tree, found in most parts of Europe. The bark is light, like cork, and is sometimes used by fishermen for floating their nets. The timber is light and soft, but is in general little in request, though used by the turners for flooring-boards, &c. 4. The Italian or Lombardy poplar (*populus dilatata*) is remarkable among trees for its peculiar mode of growth. The body of the tree is perfectly straight, and all the branches keep closely pressed around it, and take an upright direction. This tree seems to differ from the preceding chiefly in this peculiarity, and is, perhaps, only a variety. About eighty years ago, it was introduced from Italy into the other parts of Europe, and its cultivation spread with unprecedented rapidity: ornamental trees of every description were rooted up to make way for it. This *peupleomanie* extended even to this country; and it is still but too common to see the noble productions of our own forest, which have perhaps been centuries in acquiring their growth, prostrated to make room for the Lombardy poplar. In an economical point of view, it has, indeed, one advantage—that of affording little shade and taking up little room; and, whatever we may say, it has one peculiar beauty: most trees, when acted upon by the wind, are only partially agitated; but this waves in a single sweep from top to bottom, like an ostrich feather, even with the slightest blast. In many parts of the U. States, the term *poplar* is generally applied to the tulip tree. (See *Tulip Tree.*)

Popocatapetl; a volcano in Mexico, in the province of Puebla; lon. 98° 33′ W.; lat. 18° 36′ N. This volcano is constantly in action, throwing out smoke, ashes and fire, but no great eruption has hitherto taken place. Its figure is that of a truncated cone, with a large crater. It is 17,716 feet high, and is one of the highest mountains between the bay of Panama and Beering's straits.

Poppy (*papaver*). The species of poppy are herbaceous plants, all bearing large, brilliant, but fugacious flowers. One of them yields the opium of commerce, and the juice of all is lactescent. Most of the species are natives of Europe, often occurring as weeds in fields and waste places; but, in this country, we only see them in gardens, cultivated for ornament. One, indeed, the *papaver nudicaule*, is found in all the extreme northern regions of the globe. Their roots are annual or perennial; the leaves alternate, and the flowers terminal and drooping until they are expanded; the calyx is composed of two leaves, and the corolla of four petals; the stamens are very numerous, and the capsule is one-celled, but is divided internally by several longitudinal partitions, and contains a multitude of seeds.

Population, Policy of. It was formerly a maxim in politics, that a country could not be overpeopled, since it was supposed that the means of subsistence increased in proportion to the increase of population. Industry would thus find sufficient means of support, partly by increasing the produce of the earth, partly by procuring more from foreign countries, so that the great population of a country could never be the cause of its falling into want and misery, provided it consisted of productive laborers. On this account, some have even made population the first principle of policy, and recommended all measures by which its increase could be promoted. This system also taught that artificial means should be employed to aid the increase of population; and, as it was considered desirable that all births should take place in matrimony, so that the children should always be provided with natural guardians, it became an object to furnish motives for the encouragement of matrimony. The Romans passed several laws for this purpose, and endeavored to render a life of celibacy disgraceful: thus, for instance, he who had the most legitimate children, had the preference before all the other candidates for public offices. Whoever had three children was exempt from all personal taxes: free-born women who had three, and freed women who had four children, were released from the continual guardianship to which they were otherwise subjected: unmarried females, at the age of forty-five, were not allowed to wear jewels, or to use a litter, &c. Louis XIV gave pensions to those who had ten or more children, and in other countries we find similar ordinances. The impolicy and injustice of these measures could not escape observation: others, therefore, rejected the principle of population, and maintained, on the contrary, that the policy of states should be to check the increase of population. No one has labored more to carry to its greatest extent the principle of population than Sonnenfels (in his Science of Politics and Finance, and in the Manual of the internal Administration of the State, in German): but Malthus has opposed this system, and endeavored to lay the foundation of an opposite doctrine (in his Essay on Population, 3d ed., London, 1806). Malthus concludes that no more individuals can subsist in any country than the produce of human industry in that country is able to support. If, now, it can be proved that, in all countries, with a tolerably good government, the increase of population, as soon as it has arrived at a certain degree, is in a far greater proportion than the means of subsistence necessary for the support of the inhabitants, then it is evident that there will be a great scarcity, which will augment every year, as the disproportion between the population and the means of subsistence increases. For, if the population has already become so numerous, that only the greatest efforts of the nation are able to provide it with the necessary means of subsistence, then the increase of the following year cannot be provided with the necessaries of life without withdrawing them from the already existing population. He further asserts that all civilized countries are either at the point, or more or less near it, where as much food is produced from the soil as in any possible way can be obtained from it; and suppose more could be gained by greater efforts and more industry, it will never be in such proportion as the yearly increase of the population; and thus want and misery are approaching in all civilized countries, against which there is no other remedy than that the government either check the increase of population, or remove from the country the yearly arising surplus by means of colonies, and other measures conformable to this purpose. If some consider the introduction of inoculation for the small-pox, the diminution of the plague and of other epidemic diseases, as great benefits for the human race, we ought rather to regard them, according to the system of Malthus, as great evils, which only increase the want and misery of men by the famine which they inevitably produce. A careful examination will show that population may be the object of state policy, but that the promotion of this object must be regulated by a reference to other more important considerations. Many of the premises, and of course the conclusions, of Malthus are either entirely false, or true only with great limitations. For, 1. although it is abstractly true, that the instinct of propagation in men, if no impediments were put in its way, would increase the population in a geometrical progression, so that a single couple, in the course of a few centuries, would people the whole earth; yet we no where find any excess of population, and the earth has hitherto always been able to receive an almost innumerable accession of inhabitants. Nature herself has provided a thousand ways to prevent the increase of the human race beyond the means necessary for its subsistence. She presents to man the means of subsistence with a sparing hand; she has made each generation dependent upon the love of parents, and planted in man a moral sentiment which forbids him to produce children before he is able to supply their wants. The cultivation of this sentiment in a nation is the great rule to be observed in respect to population. If the government can sufficiently extend and strengthen this sentiment, it needs do but little more for the regulation of population; for then marriages will not be contracted without the means of providing for children, and parents will endeavor so to educate their children as to qualify them to earn their own support. Those who wish to marry, and have no prospect of support in the country of their residence, will emigrate. The instinct of propagation is thus checked, physically and morally, of itself, so that it cannot be against the intention of nature to keep the human race within prescribed limits. Sismondi gives, as an instance to illustrate this, the example of the family of Montmorency, which, if the natural instinct had been allowed to act freely, would have peopled the whole French empire; and yet nothing approaching to this result has taken place, although no individual of this family has been destitute of the necessary means of life. Other considerations have restrained the operations of this instinct, so that there are but a small number of individuals of this name existing in France. 2. That the artificial increase of food in any country cannot keep pace with the yearly increasing population, is an assertion also contradicted by experience, since, in fact, the increase of population rather accommodates itself to the means of subsistence, than the supply to the population. Where industry, assisted by nature, produces with ease whatever the wants of a numerous family require, there population increases the most rapidly, if other regulations of society do not prevent. And if the greater number are employed in cultivating the soil, and few idle and unproductive consumers are to be found, then the population increases in an extraordinary manner. In such countries, it doubles, according to Euler, every twelve or thirteen years. The greatest increase of population which is known, on a large scale, is in the U. States of North America, where, hitherto, it has doubled every twenty-five years. And even after all the good land has been brought into cultivation, the rapid increase will continue a long time; for the division of labor will furnish subsistence to a great number who do not wish to occupy themselves with the cultivation of the land; for experience teaches us, that a family which has no other occupation than the cultivation of the land is able, with a capital and industry, to produce enough for four or five families besides itself. Since these families which are occupied in the cultivation of the land are provided with manufactured articles, and are able to dispose of their own produce, an opulent population will arise, abundantly provided with the comforts of life. We may add that, even in the most cultivated part of the world (namely, in Europe), there is no extensive country without a quantity of uncultivated land (in England alone seven million acres), and which want nothing but hands, and the removal of political impediments, to supply the means of subsistence to a much greater number of inhabitants. It is impossible, moreover, to determine how much the means of support can be increased by a more perfect cultivation of the soil, by the discovery and introduction of more nutritious kinds of vegetables, &c., since experience shows that land which formerly hardly yielded four times the amount of the seed, now yields, under a more perfect cultivation, ten or twenty times; and what cannot be done by machines and chemical arts, if necessity and the desire of gain excite the genius of men to new inventions? Finally, the increase of population may find a supply from the cultivation of countries not yet sufficiently peopled to consume their own natural productions. Such countries are always ready to exchange their surplus produce for the manufactures of those countries which are in want of it, since they cannot manufacture so cheap and so well, but can supply the produce of the soil much cheaper than it can be raised in manufacturing countries. This exchange is advantageous for both nations; and we find that even those nations which could easily produce more (and there is no country where this could not be done) leave a portion of the land uncultivated, or do not cultivate it as much as they might, because the produce thus obtained would be much dearer to them than that which they receive from other countries. As long as there are countries where food can be raised cheaper than in others, and as long as it can be bought cheaper, including the cost of transportation, than it can be cultivated in a given country, the population of this latter country will always be enabled to increase, provided it can produce superfluous manufactures which the former will receive for the surplus produce of the soil. If we consider the many uncultivated spots which are capable of affording subsistence to innumerable millions of men, and which are still to be found in the midst of cultivated countries, then the policy which recommends checks to the increase of population, from fear of an inadequate supply, must appear very absurd. But, with regard to an excess of population in particular parts of the earth, it appears the dictate of a sound policy, 1. not to favor nor tolerate any institution in the country whereby useless, idle people are maintained. Therefore beggars and other vagabonds should never be protected in a state, and sinecures and superfluous offices should not be allowed. Every one ought to gain his subsistence by some employment useful to society. If all those produce who are able, they will easily provide for those who are employed in public offices, &c.; and with every generation as many productive individuals will arise as will be necessary to furnish supplies for those whose services they require. 2. To give a free scope to industry, and to useful labor of all kinds, and to make them the chief principle of the division of goods. It is contrary to this principle if money, and particularly land, is kept united in great masses, in few hands, by means of associations, and if the access to them is rendered difficult, or is denied to industry, so that it cannot obtain what a free competition would have given it. Such institutions operate directly against the production of the country, and consequently against the population, as well as the distribution of wealth. But where the property is distributed according to the industry of each individual, the increase of the national wealth and its general distribution are best promoted, and the increase of population always follows the increase of the means of subsistence in a just proportion. 3. To give no occasion to capitalists or traders to transfer their capitals or their business to another country, as long as their own offers them equal advantages. 4. To give full liberty to those who wish to emigrate. Where such a policy is adopted, the natural instinct may be permitted to act freely, without fear of an excess of population. On the contrary, all artificial measures, which governments have often employed to increase the population, ought to be entirely rejected, because they do not also supply the means of preserving and educating the children. Since, further, the institution of matrimony is a religious and moral institution, which promotes, in the safest way, the moral purpose of the sexual appetite, a community ought to prevent, as much as possible, the birth of illegitimate children. No one should enter into matrimony without the prospect of being able to educate his children in such a manner that they shall also be able to provide for themselves, and afterwards for their children. Hence it follows that population, abstractly considered, is not an important subject of public policy, and that we ought not to fear, in the common course of affairs, an excess of population in civilized countries.

Porcelain. The Chinese porcelain excels other kinds of ware in the delicacy of its texture, and the partial transparency which it exhibits when held against the light. It has been long known and manufactured by the Chinese, but has nev er been successfully imitated in Europe until within the last century. In China, porcelain is made by the union of two earths, to which they give the name of *petuntze* and *kaolin*, the former of which is fusible in the furnace, the latter not. Both these earths are varieties of feldspar, the kaolin being feldspar in a state of decomposition, and which is rendered infusible by having lost the small quantity of potass which originally entered into its composition. The petuntze is feldspar undecomposed. These earths are reduced to an impalpable powder by processes described in the article *Pottery*, and intimately blended together. When exposed to a strong heat, the petuntze partially melts, and, enveloping the infusible kaolin, communicates to it a fine semitransparency. The glazing is produced by the petuntze alone, applied in minute powder to the ware after it is dry.—*European porcelain.* Since the nature of the Chinese earths has been understood, materials nearly of the same kind have been found in different parts of Europe, and the manufacture of porcelain has been carried on in several countries, but particularly at Sevres, in France, with great success. The European porcelains, in the elegance and variety of their forms and the beauty of the designs which are executed upon them, excel the manufactures of the Chinese. But the Oriental porcelain has not yet been equalled in hardness, strength, durability, and the permanency of its glaze. Several of the processes which are successfully practised by the Chinese, remain still to be learnt by Europeans. The manufacturers in Saxony are said to have approached most nearly, in their products, to the character of the Asiatic porcelain. The porcelain earths are found in various parts of the U. States, and will doubtless, hereafter, constitute the material of important manufactures. The finer and more costly kinds of porcelain derive their value, not so much from the quality of their material, as from the labor bestowed on their external decoration. When the pieces are separately painted by hand, with devices of different subjects, their value, as specimens of art, depends upon the size of the piece, the number and brilliancy of the colors employed, and more especially upon the skill and finish, exhibited by the artist in the design. The manual part of the operation consists in mixing the coloring oxide with a fluid medium, commonly an essential oil, and applying it with camels' hair pencils. The colors used are the same as those employed in other kinds of enamelling. When one color requires to be laid over another, this is performed by a second operation; and it often happens that a piece of porcelain has to go into the enamel kiln four or five times, when a great variety of colors is contained in the painting. The *magic porcelain* of the Chinese has figures upon its surface, said to be invisible when the vessels are empty, but becoming apparent when they are filled with water.

Porcelain Clay. (See *Clay*.)

Porcia; daughter of Cato of Utica, and wife of Brutus, celebrated as a model of connubial love and heroic patriotism. She preserved inviolate the secret of the conspiracy against Cæsar, with which she had been intrusted by her husband, and put herself to death when she saw the cause of the republicans lost. The story of her swallowing live coals is not true.

Porcupine (*hystrix*); a genus of quadrupeds belonging to the *rodentia*, or gnawers, characterized by having the clavicles imperfect, two incisor teeth in each jaw, and four molars both above and below, on each side; these have flat crowns, surrounded by a line of enamel, which enters into both edges, and appears to divide the tooth into two portions; there are also small lines of enamel radiating from the centre, which are worn down by attrition; the muzzle is thick and truncated; the lip divided; the tongue furnished with spiny scales; the ears short and rounded; the anterior feet furnished with four toes, and the posterior with five, all armed with thick nails. Cuvier divides this genus into *hystrix*, *atherura*, *eretison* and *synethera*; the first including the common porcupine; the second, the fasciculated porcupine; the third, the Canadian porcupine; and the fourth, the porcupine with a prehensile tail. The common porcupine (*H. cristata*) is found in the southern parts of Europe and in Barbary. When full grown, it measures nearly two feet in length, and some of its spines exceed a foot. Its general color is a grizzled, dusky black. The upper part of its head and neck is furnished with long, light colored hairs, capable of being raised or depressed at pleasure; most parts of the back and sides are armed with spines, which are longest on the centre of the back. In their usual position they lie nearly flat upon the body, with their points directed backwards; but when the animal is excited, they are capable of being raised. The common porcupine, though known from the earliest ages, has given rise to numberless fables, among which that most commonly received is, that it possesses the power of ejecting its quills to a considerable distance when irritated or pursued. The use of this armature does not appear to be well understood; the most probable supposition, however, is, that, like that of the hedgehog, it is merely for defence, as, like that animal, it has the power of rolling itself up in a ball, and thus presenting a phalanx of spears on every side, that renders the attack of most animals fruitless. The porcupine generally sleeps during the day, and only leaves its burrow in the evening, in search of its food, which is almost entirely composed of vegetables. In captivity it is quiet and peaceable, but shows no marks of attachment or familiarity. Canada porcupine (*H. dorsata*) is a very unsightly and sluggish animal, and is not provided with the long quills so remarkable in the last-mentioned species, its armature consisting of short, sharp spines, almost concealed by the hair with which they are intermingled. It is about two feet long, of a brownish color mingled with white; the spines are attached in a very slight manner to the animal, and, from being barbed at tip with numerous small reversed points or prickles, they, by degrees, penetrate very deeply into the flesh after having once pierced it. Small and insignificant as these defensive weapons may appear, they are capable of causing the death of dogs, wolves, or indeed of any animal that incautiously attempts to seize the porcupine. These spines or quills are much used among the Indians to ornament different articles of dress; they dye them of various colors, in a very permanent manner. The Canada porcupine is principally found in the northern parts of the U. States and in Canada. They feed on the barks of various trees, apples, corn, &c. Their flesh is said to be very unpalatable, resembling flabby pork. They pair about the latter end of September, and the female brings forth two young in April or May.

Pordenone (so called from his birthplace, his true name being Giovanni Antonio Licinio), or **Regillo da Pordenone**, a painter of the Venetian school, and rival of Titian, was born in 1584, and executed many works for his native place; some also for Mantua, Vicenza, Genoa; but his greatest works for Venice. For this city he painted the chapel of St. Roch, and the hall of the Pregadi, in conjunction with Titian, with whom he also painted in St. John's church, whence a constant rivalry existed between them. He died in Ferrara, whither he had been invited by the duke Ercole II, to prepare cartoons for Flemish tapestry (*arazzi*). His death was attributed to poison. He is distinguished for bold and lively coloring.

Porosity, an essential property of bodies, is best ascertained by the microscope, which shows us the passage of fluids through solid bodies; or we may discover this property in the transmission of light, in all directions, through the internal structure of hard and solid bodies. The porosity of wood is very remarkable. Air may be blown, by the mouth, in a profuse stream, through a cylinder two feet long of dried oak, beech, elm or birch; and if a piece of wood, or a piece of marble, be dipped in water, and submitted to experiment under the receiver of a pneumatic machine, the air issuing through the exterior cavities will appear in a torrent of bubbles on the external surface. In like manner mercury is forced through a piece of dry wood, and made to fall in the form of a fine divided shower. If a few ounces be tied in a bag of sheep skin, it may be squeezed through the leather by the pressure of the hand, in numerous minute streamlets. This experiment illustrates the porosity of the human cuticle. From microscopic observations, it has been computed that the skin is perforated by a thousand holes in the length of an inch. If we estimate the whole surface of the body of a middle-sized man to be sixteen square feet, it must contain no fewer than 2,304,000 pores. These pores are the mouths of so many excretory vessels, which perform that important function in the animal economy, *insensible perspiration*. The lungs discharge, every minute, six grains, and the surface of the skin from three to twenty grains, the average over the whole body being fifteen grains of lymph, consisting of water, with a very minute admixture of salt, acetic acid, and a trace of iron. If we suppose this perspirable matter to consist of globules only ten times smaller than the red particles of blood, or about the 5000th part of an inch in diameter, it would require a succession of 400 of them to issue from each orifice every second. The permeability of a solid body to any fluid, depends, however, on its peculiar structure and its relation to the fluid. A compact substance will sometimes oppose the entrance of thin fluid, while it gives free passage to a gross one. Thus a cask, which holds water, will permit oil to ooze through it; and a fresh, humid bladder, which is air-tight, will yet, when pressed under water, imbibe much of that liquid. If a cylindrical piece of oak, ash, elm, or other hard wood, cut in the direction of its fibres, be cemented to the end of a long glass tube, water will pass freely through it, in divided streamlets; but a soft cork, inserted into a similar tube, will effectually prevent all escape of the liquid. Mercury may be carried in a small cambric bag, which could not retain water for a moment. If a circular bottom of close-grained wood, divided by a fine slit (from the 30th to the 100th part of an inch wide), be cemented to the end of a glass tube, it will support a column of mercury from one to three or more inches high, the elevation being always proportional to the narrowness of the slit. Hence a cistern of box-wood is frequently used for portable barometers, the fine joints admitting the access and pressure of the air, but preventing the escape of the mercury. Yet a sufficient force would overcome this obstruction; and, in the same manner, the air which is confined in the common bellows under a moderate pressure, might, by a more violent action, be made to transpire copiously through the boards and the leather. The transmission of a fluid through a solid substance shows the existence of pores; but the resistance, in ordinary cases, to such a passage, is insufficient, therefore, to prove the contrary. The permeability of translucent substances to the rays of light, in all directions, evinces the most extreme porosity. But this inference is not confined merely to the bodies usually termed *diaphanous*; for the gradation towards opacity advances by insensible shades. The thin air itself is not perfectly translucid, nor will the densest metal absolutely bar all passage of light. The whole mass of our atmosphere, equal to the weight of a column of thirty-four feet of water, transmits, according to its comparative clearness, only from four fifths to three fourths of the perpendicular light, and consequently retains or absorbs from a fifth to a fourth of the whole. But this absorption is greatly increased by the accumulation of the medium. When the sun has approached within a degree of the horizon, and his rays now traverse a tract of air equal in weight to a column of 905 feet of water, only the 212th part of them can reach the surface of the earth. Even gold itself is diaphanous: if a leaf of that metal, either pure or with only an 80th part of alloy, and therefore of a fine yellow lustre, but scarcely exceeding the 300,000th part of an inch in thickness, and enclosed between two thin plates of mica, be held immediately before the eye, and opposite to a window, it will transmit a soft green light, like the color of the water of the sea, or of a clear lake of moderate depth. The inferior ductility of the other metals will not allow that fine lamination, which would be requisite for showing, in ordinary cases, the transmission of light. But their diaphanous quality might be inferred from the tints with which they affect the transmitted rays, on being alloyed with gold. Other substances, though commonly reckoned opaque, yet admit, in various degrees, the passage of light. The window of a small apartment being closed by a deal board, if a person within shut his eyes a few minutes to render them more acute, he will, on opening them again, easily discern a faint glimmer issuing through the window. In proportion as the board is planed thinner, more light will be admitted, till the furniture of the room becomes visible. Writing paper transmits about a third part of the whole incident light, and, when oiled, it often supplies the place of glass in the common workshops. The addition of oil does not, however, materially augment the diaphanous quality of the paper, but renders its internal structure more regular, and more assimilated to that of a liquid. The rays of light travel, without much obstruction, across several folds of paper, and even escape copiously through pasteboard. Combining these various facts, it follows that all bodies are permeable, though in extremely different degrees, to the afflux of light. They must, therefore, be widely perforated, and in every possible direction.

Porphyry is a compound rock, having a basis in which the other contemporaneous constituent parts are imbedded. The base is sometimes claystone, sometimes hornstone, sometimes compact feldspar, jade, pitchstone, pearlstone, and obsidian. The imbedded parts are commonly feldspar and quartz; the former in more or less distinct crystals. There are porphyries of different ages. One variety is found graduating into granite and gneiss; but this does not possess the characteristics of the rock in the highest perfection; another is found in overlying strata, and unconformable to other rocks, which is the true porphyry. Its color is often red or green, and, when polished, is valuable for ornamental work, being superior to marble, on account of its great hardness. This rock abounds in Egypt, the northern parts of Europe, in Mexico and

South America; it also exists in the vicinity of Boston, in Massachusetts. There is still another variety found in connexion with extinct volcanoes, which is sometimes distinguished by the name of *clay-porphyry*. It abounds in the neighborhood of the Mediterranean.

Porphyry; a celebrated philosopher, of the school of the New Platonists. (See *New Platonists*.)

Porpoise (*delphinus phocæna*). Several species of the genus *delphinus* are known by seamen under the name of porpoise, but the *D. phocæna* is that to which this designation is generally applied. The term *porpoise*, *porpesse*, or *porpus*, is derived from the Italian *porcopesce*, or hog-fish, from the supposed resemblance of its projecting snout to that of the hog; the French and German appellations for it have a similar signification. The porpoise is distinguished from the dolphin by the superior thickness of its head and its smaller size. The back is generally black, and the belly white. Both jaws are furnished with teeth; these are compressed, sharp, black above and white beneath. The spout-hole is upon the crown of the head, of a semilunar shape, and divided internally by a cartilaginous membrane. The whole body is covered with a coat of fat, nearly an inch in thickness, beneath which the flesh appears red and muscular, resembling that of the hog. They are very abundant on the American coast, and, before a storm, may be seen gambolling and *tumbling*, as it is termed, in large shoals. The porpoise feeds on small fish, such as the herring and mackerel, of which they destroy great numbers. It is said that they act in concert, when in pursuit of their prey, urging them from one bay or estuary to another, deterring them from the shallow water, and driving them towards each other's ambush, with all the art of an experienced dog. The flesh was formerly considered as a great delicacy, but is now seldom eaten; the liver, however, is still esteemed by seamen, and is said to resemble that of the hog in taste.

Porpora, Nicolò (called, by the Italians, the *patriarch of harmony*), was born at Naples in 1685. His first opera, *Ariana e Teseo*, was brought out at Vienna (1717). The operas which he composed for Rome, Naples and Venice, before and after his visit to England, amount, according to doctor Burney, to more than fifty. In 1730, several cantatas by him were also published. In 1726, he brought forward his *Siface*, at Venice, at the same time that Vinci had his *Siroe* performed on another stage in the same city. At first he found it difficult to sustain the contest, but, up to 1729, he had brought out five operas at Venice, which were received with general applause. In that year he went to Dresden, where the king of Poland appointed him his chapel-master. He was treated with the greatest distinction at court, and Hasse (q. v.) and his wife could not conceal their jealousy of Porpora and the celebrated Mingotti (q. v.), whom he had instructed. In 1731, Porpora returned to Naples, and established a singing school, which produced the greatest singers of the eighteenth century, Farinelli (q. v.), Caffarelli (see *Majorano*), Salimberti, Uberti, Gabrielli, &c. In 1732, he went with Farinelli to London, whither he had been invited on account of the disputes between Händel (q. v.) and the directors of the opera. His twelve cantatas for a single voice procured him this invitation. But his theatre sustained itself only while supported by Händel's adversaries, and, in 1736, it entirely fell through. He had exhibited only four operas in London. During his stay there, he published six trios for two violins and a bass-viol (*Sei Sinfonie di Camera*), which show that he excelled much less in instrumental than in vocal music. He appears, however, to have been sensible of his defects; he studied the sonatas of Corelli, and, in 1754, published twelve sonatas for the violin, which belong to the first class in this department. At about the same time, he visited Germany again, and taught singing in Vienna. Haydn (q. v.), who was then emerging from poverty, accompanied him on the harpsichord, and was in his service for three months. Porpora produced masterpieces for the church, the chamber, and the theatre. Selvaggi made a complete collection of such of his works as were at Rome: there are many others at Naples. The prevailing character of his music is serious and elevated. In the recitative he was considered, by all composers, as a model. After having been, a long time, first teacher of the *conservatorio degli incurabili* at Venice, where he composed many admirable masses and motets, he returned to Naples, where he died in 1767, in the greatest poverty.

Porsenna, the king of the Etrurian city Clusium, received the Tarquins when they fled from Rome, and, after in vain endeavoring to effect their restoration by negotiation, advanced with an army to Rome. He would have entered the city with the flying Romans, had not Horatius Cocles (q. v.) disputed the passage until the bridge was broken down. Porsenna then besieged Rome, and a famine was produced in the city, when another Roman youth, Mucius Scævola (q. v.), gave a striking proof of his patriotism and devotedness. Porsenna was now inclined to negotiation. He demanded that their property should be restored to the Tarquins, and that the cities taken from the Veientes, in former wars, should be given up. The second condition was granted; the first was rejected. A truce, however, was agreed upon, for the security of which the Romans sent ten young men, and as many girls, as hostages, to the Etrurian camp. The latter found an opportunity of escaping to Rome, by swimming over the Tiber. But the consul Publicola conveyed them back again to Porsenna, and was, on this occasion, treated with the greatest indignity by the Tarquins. Porsenna, on receiving intelligence of it, immediately despatched his son Aruns, to protect the Romans. Indignant at the perfidy of the Tarquins, and respecting the magnanimity of the Romans, the king separated himself from the former, and concluded peace with the latter without taking away their hostages. To relieve the wants of the Romans, without offending their pride by a formal present, he left behind, at his departure, his whole camp, with all its stores. In remembrance of his magnanimity, the senate erected to him a monument, and presented him with an ivory chair and sceptre, a golden crown, and a royal robe. A subsequent proposition from Porsenna to the Romans to admit the Tarquins being declined, Porsenna abandoned them, lived in undisturbed friendship with the Romans, and restored to them the territory of the Veientes, which they had ceded at the conclusion of peace.

Porson, Richard; a celebrated critic and classical scholar, professor of Greek in the university of Cambridge. He was born Dec. 25, 1759, at East Ruston, in Norfolk, where his father was clerk of the parish, and to him he was indebted for the first rudiments of his education. He received some further instruction at the village school, and also from the vicar of Ruston; after which he was sent to Eton, through the patronage of some gentlemen who witnessed and admired his early proficiency and inclination for the study of classical literature. In 1777, he became a student of Trinity college, Cambridge, where he gained a prize medal; and, in 1781, he was chosen to a fellowship. He proceeded M. A. in 1785; and, not choosing to take holy orders, on account of conscientious scruples in regard to the signing of the Thirty-nine Articles, he was obliged to relinquish his fellowship. In 1793, he was unanimously elected Greek professor, and, two years after, he began the publication of the Tragedies of Euripides, with annotations, but continued his labors only through four of these dramas—Hecuba, Orestes, Phœnissæ, and Medea. He also assisted in editing the Grenville Homer, published at Oxford (1800, 4 vols., 4to.), and corrected the text of the tragedies of Æschylus for a splendid edition, which appeared from the Glasgow press, in folio, also printed in two volumes octavo. He enjoyed the reputation of being one of the best Greek scholars and critics of the age in England, notwithstanding which, he experienced little patronage—a circumstance partly attributable to his intemperate habits. Towards the latter part of his life, he was appointed librarian to the London institution, with a salary of £200 a year; and his death took place Sept. 25, 1808, at his apartments, in the house then belonging to that establishment in the Old Jewry. His decease was occasioned by apoplexy; and, his body having been subjected to anatomical examination, it was discovered that his skull was one of the thickest that had ever been observed. He was the author of Letters to Archdeacon Travis, in Answer to his Defence of the Three Heavenly Witnesses (1790, 8vo.), in which he is allowed to have completely invalidated the contested text, 1 John, v, 7; and, after his death, professor Monk and Mr. Blomfield, now bishop of London, published his Adversaria, or Notes and Emendations of the Greek Poets; and his Tracts and Miscellanies were edited by Mr. Kidd (1815). Many of these are sallies of irony and humor of the most racy and peculiar kind, which, with other articles abounding with learning and critical acumen, appeared in various of the literary journals. Acuteness of discernment, solidity of judgment, united to intense application and a stupendous memory, rendered professor Porson a complete critic in the most honorable sense of that appellation. He married Mrs. Leman, sister to Mr. Perry, proprietor of the Morning Chronicle, in which many of his fugitive pieces appeared. (See the article *Porson* in the Supplement to the Encyclopædia Britannica, written by doctor Young.)

Port. The name of *Port wines*, or *Oporto wines*, is given, in commerce, to the produce of the vineyards along the course of the Douro, in Portugal. Although there are, in reality, many varieties of wines produced in this district, yet such is the degree to which the manipulations, admixtures and adulterations of these wines have been carried, that Port wine has come to be considered as a peculiar species of liquor, of nearly uniform flavor and strength, varying, indeed, in quality, but admitting few degrees of excellence; whereas the liquor sold under this name is, in fact, a compound of a great number of wines of very different quality, with a large admixture of brandy. The wine country of the Upper Douro begins at about fifty miles from Oporto, and is under the superintendence of a company vested with great privileges. The better wines, under the name of *factory* wines, are destined for exportation; those designed for the English market are called *vinhos de embarque*, or *export* wines, and those for other countries *vinhos separados*, or *assorted* wines. The wine is first placed in large tuns, in which it remains till winter, when it is racked into pipes, and conveyed to Oporto. To that intended for exportation, brandy is added when it is deposited in the stores, and an additional quantity when it is shipped, generally about a year after the vintage. It is then of a dark purple color, a full body, with an astringent bitter-sweet taste, and a strong flavor and odor of brandy. After remaining some years in the wood, the sweetness, roughness, and astringency of the flavor, abate; but it is not until it has been kept ten or fifteen years in bottle that the odor of the brandy is subdued, and the genuine aroma of the wine is developed. When a very large portion of the extractive and coloring matter is precipitated in the form of a crust, the wine becomes tawny, and loses its flavor and aroma. This is very apt to be the case in the wines made from white grapes, and colored with elder berries or other materials—a common practice when there is a deficiency of the black grapes. Port wines of excellent quality are often so highly adulterated with brandy as to be entirely deprived of their flavor and aroma; and the stronger kinds, which are not irretrievably ruined by this admixture, only regain their flavor after being allowed to mellow for many years. Port wine (if the liquor thus described may be so called) was introduced into very general use in England by the Methuen treaty (1703), and the frequent and protracted hostilities between England and France kept it in vogue till the peace of 1815, since which the taste for light wines has been revived there, so as materially to lessen the consumption of the strong wines of Portugal. The Port wines, abounding in the astringent principle, and deriving additional potency from brandy, may be serviceable in disorders in which gentle tonics are required; but gallic acid renders them unfit for weak stomachs, and the excitement they produce is of rather a sluggish nature.—See *Wines;* see, also, Henderson, on wines (London, 1824).

Port; a harbor or haven on the seacoast.—*Free Port* is one open and free for merchants of all nations to load and unload their vessels in, without paying any duty or customs: such are the ports of Genoa and Leghorn.—*Free Port* is also used for a total exemption and franchise which any set of merchants enjoy, for goods imported into a state, or those of the growth of the country exported by them.

Port is also a name given, on some occasions, to the larboard or left side of the ship, as *Port the helm*—the order to put the helm over to the larboard side of the vessel, when going large. This word appears intended to prevent any mistakes happening from the similarity of sounds in the words *starboard* and *larboard*, particularly when orders are given relating to the helm.

Port, or Port Hole. The embrasures or openings in the side of a ship of war, wherein the artillery is ranged in battery upon the decks, above and below, are called *ports*, or *port holes.*—*Gun-room ports* are situated in the ship's counter, and are used for stern-chases, and also for passing a small cable or a hawser out, either to moor, head and stern, or to spring upon the cable, &c.—*Lower-deck ports* are those on the lowest gun-deck.—*Middle-deck ports* are those on the second or middle gun-deck of three-deckers. The port holes are shut up in storms, to prevent the water from driving through them.—*Port lids;* a sort of hanging doors, to shut in the ports at sea. They are fastened by hinges to the upper edges of the ports, so as to let down when the cannon are drawn into the ship, whereby the water is prevented entering the lower decks.—*Port Hooks;* hooks over the ports, to which the port hinges are attached.

Port-au-Prince. (See *Port Républicain.*)

Port Jackson. (See *New South Wales*, and *Sydney*.)

Port Mahon. (See *Mahon*.)

Port Républicain; formerly *Port-au-Prince*, capital of the republic of Hayti (q. v.), on the western side of the island, at the south-east extremity of the bay of the same name; lat. 18° 33′ N.; lon. 72° 27′ W. It is built in a low and unhealthy spot, with broad but unpaved streets, and contains the president's palace, several literary institutions, a lazaretto, and other public buildings. Besides the military school, the pupils of which are instructed gratuitously, there are several monitorial schools. Commerce is the principal occupation of the inhabitants. In 1824, 131 American, 18 English, 6 German, and 33 French vessels entered the port, and the value of the imports amounted to 16,500,000 francs. The amount of exports—coffee, cotton, Campeachy wood, &c.—was much greater. The population, which, in 1790, was 15,000 (of whom 12,000 were blacks), is now estimated at 30,000. The city was founded in 1745, and was completely destroyed by an earthquake in 1770. In 1830, it experienced several shocks, some of which did considerable damage.

Port Royal; a seaport of the island of Jamaica. (q. v.)

Port Royal des Champs; a Cistercian convent, founded in 1233, not far from Versailles, and about six leagues from Paris, played an important part in the Jansenistic controversy. (See *Arnauld*, and *Jansenius*.) The abbess Angelica, sister of Antony Arnauld, had brought it into closer connexion with the theologians of Paris by founding a new convent in the suburb of St. Jacques in Paris (1626), which, in distinction from the parent establishment, was called *Port Royal de Paris*. She had also revived the monastic austerity in the two houses. The nuns of Port Royal adhered, under the influence of their protector, Jean de Vergier du Havranne, abbot of St. Cyran, to the Jansenists, and their house in the country became the sanctuary of the party, when the most eloquent theologians and defenders of Jansenism—Nicole, the brothers Arnauld and Lemaitre—took up their residence at Port Royal des Champs, in a separate building, called *Les Granges*. Here they participated in the penances and labors of the nuns, and set up a school, in which, in opposition to the lax system of the Jesuits, they inculcated a purer morality, and aimed at a more thorough course of study, with useful improvements in the method of instruction. The celebrated Anne of Bourbon, duchess of Longueville, came into the neighborhood, and became their patroness; Boileau was their friend, and Racine their grateful pupil. The latter wrote a history of Port Royal. This society presented a union of great talents, profound learning and sincere piety, which has rarely been equalled: penitents of all conditions joined it, and the fame of its sanctity spread over the Catholic world. Trusting to their reputation, the nuns refused to subscribe the bull of Alexander VII against the disputed doctrines of Jansenius, and sustained themselves, after their protectors had been expelled, through numerous humiliations, until the beginning of the eighteenth century, when their continued adherence to the Jansenist doctrines, which had gone out of vogue, resulted in the suppression and complete destruction of the abbey by the Paris police (1709). Its ruins still form a place of pilgrimage for the more devout Parisian, and Grégoire has erected a monument to its memory in his work entitled *Les Ruines de Port Royal* (1809).

Portage is used in the U. States for a carrying place over land between navigable rivers. In several instances this name has been given to settlements in the vicinity of such carrying places.

Portamento di Voce (Italian, *conduct of the voice*), in music, signifies the skill of the singer to connect one sound so closely with the others, that no interruption is perceptible, and that all seem to be but one long breathing. The art of the singer, in this respect, is to breathe at the proper time.

Portcullis, in fortification, is an assemblage of several large pieces of wood, joined across one another like a harrow, and each pointed with iron at the bottom. They are sometimes hung over the gateway of old fortified towns, ready to be let down in case of surprise, when the gates cannot be shut.

Porte, Ottoman, or **Sublime Porte**; the court of the Turkish sultan, so called from the gate (*porta* in Italian) of the imperial palace. (See *Ottoman Empire*.)

Porter, sir Robert Ker, was born at Durham. His mother was left a widow with five children, and in scanty circumstances. Robert early manifested an uncommon genius for drawing, many of his sketches, made when he was only six years of age, being remarkable for their spirit; and, in 1790, he became a student at the royal academy, under the auspices of Mr. West. Not more than two years had elapsed, since his commencing his studies at the academy, when he was employed to paint the figures of Moses and Aaron, for the communion-table of Shoreditch church. In 1794, he presented to the Roman Catholic chapel, at Portsea, an altar-piece representing Christ calming the storm; and, in 1798, he gave to St. John's college, Cambridge, an altar-piece, the subject of which is St. John preaching in the wilderness. He was only twenty-two when he began his large picture of the storming of Seringapatam. Though it contained nearly seven hundred figures as large as life, it was finished in ten weeks; nor did it bear any marks of haste, it being, both in composition and coloring, a work of high merit. It was succeeded by two other pictures of the same magnitude—the Siege of Acre, and the Battle of Agincourt. In 1804, he was invited to Russia by the emperor, who made him his historical painter. He consequently visited St. Petersburg, where he was received with distinction, and employed to decorate the admiralty hall, in the Russian capital. While residing there, he gained the affections of the princess Scherbatoff, and was on the point of marrying her, when a rupture with England obliged him to leave Russia. He passed into Sweden to join the British forces under sir John Moore, whom he accompanied to Spain, sharing in the hardships and perils of the campaign, which ended with the battle of Corunna. After having remained for some time in England, he again went to Russia, and received the hand of the princess Scherbatoff. With her he revisited his native country, where, in 1813, he obtained the honor of knighthood. From 1817 to 1820 inclusive, he was engaged in travelling through the East; and, in the course of his travels, explored the countries from the banks of the Black sea to the Euphrates, and from the Euphrates to the mouth of the Persian gulf. Among his works are Travelling Sketches in Russia and Sweden (2 vols., 4to., 1808); Letters from Portugal and Spain (8vo., 1809); Narrative of the Campaign in Russia (1813); Travels in Georgia, Persia and Armenia (1822).

Porter. The quantity of beer, ale and porter imported into the U. States in the year ending September 30, 1830, was 65,260 gallons, valued at 60,420 dollars; the quantity exported was 3866 gallons, valued at 3925 dollars. (For the manufacture of porter, see *Brewing*, vol. ii, p. 263.)

Portici. (See *Naples*, and *Herculaneum*.)

Portico (Italian, from *porticus*, Lat.); a continued range of columns, covered at top, in order to serve as a shelter from the weather; also a common name for buildings which had such covered walks supported by pillars. Among the ancients, these were highly ornamented, and of great extent. The remains of the portico at Palmyra (q. v.) show it to have been full 4000 feet long. There was a famous portico at Athens, called *Pœcile*. (q. v.) Among modern porticoes, those of the grand *façade* of the Louvre and of the great court of the hospital of invalids at Paris, and that at Greenwich hospital, deserve mention.

Portiuncula. (See *Franciscans*.)

Portland. The Bentinck family is Dutch, the founder of it in England having been count Bentinck, created earl of Portland by William III; his son was created duke by George the First. The grandson of the latter, William Henry Cavendish Bentinck, third duke, was born in 1738, and, after sitting for some time in the house of commons, was called to the upper house by the death of his father, in 1762, from which time he voted with the marquis of Rockingham (q. v.), in whose administration he was lord chamberlain. During the American war, he acted with the opposition, and, in 1782, was appointed lord lieutenant of Ireland, where he remained only three months, in consequence of the death of the marquis of Rockingham. From the accession of Pitt, the duke acted with the whig opposition until 1792, when he was elected chancellor of Oxford, and, joining with Mr. Burke in his alarm at the French revolution, he supported administration. He was accordingly, in 1794, made secretary of state for the home department, which he held until the resignation of Mr. Pitt, in 1801, and was then appointed president of the council, which he held until 1805. On the resignation of lord Grenville, in 1807, he was appointed first lord of the treasury, which office he resigned soon after, and died in 1808. The present duke of Portland (born in 1768) was lord privy seal in Canning's administration, and lord president of the council in that of Goderich.

Portland; a post-town, port of entry and commercial metropolis of the state of Maine. It stands on a peninsula in Casco bay, and has a beautiful and healthy situation, and one of the best harbors in America; north-north-east from Boston, 110 miles; from Portsmouth, 54; from Washington, 542; latitude of Observatory hill, 43° 39′ N.; lon. 70° 20′ 30″ W.; population, in 1820, 8581; in 1830, 12,601. The town is well laid out, and is built in a very convenient and elegant style. There are very few towns in America which are so pleasant to the eye of the traveller. It contains fifteen meeting-houses, including two for Christians (q. v.), one for Roman Catholics, one for Africans and one for mariners; also a custom-house, a theatre, an atheneum containing a library of 3000 volumes, and six banks, including the branch bank of the U. States. The harbor is very safe and capacious, and is never frozen, except for a few days in the coldest winters. On a head land on cape Elizabeth, near the entrance of the harbor, there is a stone lighthouse, seventy feet high, erected in 1790. The town is defended by forts Preble and Scammel, on opposite sides of the ship channel, one mile and a half from the lighthouse. The islands around the harbor are very numerous and beautiful, and protect it against the violence of storms. The shipping belonging to this port, in 1821, amounted to 33,619 tons; and on the 30th of Sept., 1831, it amounted to 42,992 tons, and consisted of 25 ships, 98 brigs, 208 schooners, 33 sloops, 3 steam-boats, and 31 vessels under 20 tons. The principal articles of export are lumber and fish. Much attention is paid to education. The town supports one English high school for boys; two monitorial schools for boys, and two for girls; six primary schools, and one for colored children. One academy, two high schools for females, and several other schools, are supported at private expense. Portland was formerly a part of Falmouth, and, in 1775, the principal part of the town was burned by the British. It was incorporated by its present name in 1786.

Portland Stone is a dull, whitish species, much used in buildings about London. It is composed of a coarse grit cemented together by an earthy spar.

Portland Vase (formerly called the *Barberini Vase*); one of the most beautiful relics of antiquity of the kind. It is a funeral vase, and was discovered near Rome, during the pontificate (1622—1644) of Urban VIII (Barberini), in a sarcophagus, which is supposed to have been that of Alexander Severus and Julia Mammæa, his mother. It was bought of the Barberini family in 1786, by the late duke of Portland, for 1000 guineas. Its height is about ten inches, and its diameter, where broadest, six. There are several figures on it of exquisite workmanship, in basso relievo, in white opaque glass, on a ground of deep blue glass, which appears black except when held against the light. Veltheim (*Hist. und Antiq. Abhandl.*, 1800) thinks that it represents the history of Alceste, who is restored to Admetus by Hercules, but that on the sarcophagus, which is still in the Vatican, is represented the quarrel of Achilles and Agamemnon about Briseis.—See Wedgwood's *Description of the Portland Vase* (London, 1790, 4to.).

Porto. (See *Oporto*.)

Porto Bello (properly *Puerto Velo*); a harbor and city of New Grenada, on the isthmus of Panama, forty-five miles N. W. of the city of Panama. It is situated on the Caribbean sea, and has a large and safe harbor; lat. 90° 24′ N.; lon. 79° 43′ W. It was never very populous, even in its most flourishing period, and its population is now much reduced; we have no precise data relative to it. The Spanish galleons formerly came here annually to receive on board the rich exports of Peru and Chile, which were landed at Panama, and transported across the isthmus; but it was captured several times by the English; and, in 1740, its fortifications were destroyed by admiral Vernon, from which period the articles above-mentioned were carried round cape Horn. (See *Panama, Isthmus of*.)

Porto Cabello, or Puerto Cabello; a town of Venezuela, on the Caribbean sea; lat. 10° 28′ N.; lon. 68° 17′ W. It is built partly on a small island, which communicates with the continent by a bridge. It has a capacious and safe harbor, and a population of less than 5,000.

Porto Rico. (See *Appendix*, end of this volume.)

Porto Santo. (See *Madeira*.)

Port Royal. (See page 268.)

Ports, Cinque. (See *Cinque Ports*.)

Portsmouth; a noted seaport in the English channel, being the principal rendezvous of the British navy. It is situated on the western side of the island of Portsea, at the mouth of the bay termed *Portsmouth harbor*, and consists of the old town of Portsmouth, included within its fortified walls, and the new towns of Portsea and Southsea, which were only begun about a century ago, on commons to the north and south of the town, but have already outgrown in size, population and importance the parent town itself. Portsmouth harbor excels, decidedly, every other in Great Britain for its capaciousness, depth and security. At its entrance, the harbor is very narrow, but it soon expands to a great width. Every where the anchorage is good, the depth sufficient for ships of any size, the shelter complete, and the extent sufficient to contain almost the whole navy of England. The famous roadstead of Spithead, between Portsmouth and the Isle of Wight, can contain 1000 sail of vessels in the greatest security. Portsmouth harbor is well protected from assaults by the number and strength of its batteries. The fortifications were begun by Edward IV. The dock-yard, being the grand naval arsenal of England and the general rendezvous of the British fleet, is by far the largest in the kingdom, including an area of 100 acres. In the naval college, the number of scholars is limited to 100 in time of war, and seventy in time of peace, of whom thirty, the sons of officers of the navy, are maintained and educated free of expense. On the anchor-wharf, hundreds of anchors are piled up ready for immediate service. The ropery is three stories high, fifty-four feet broad, and 1094 feet long. In the vast building called the *smithery*, anchors are wrought weighing from seventy to ninety cwts. each. The gun-wharf is an immense arsenal, consisting of various ranges of buildings for the reception of naval and military stores, artillery, &c. The small armory is capable of containing 25,000 stand of arms. Near Portsmouth is Haslar hospital, for the navy. The church of Portsmouth is a spacious structure, dedicated to St. Thomas a Becket. The tower, which is the most modern part, forms a good mark to seamen. There are various charitable, literary and scientific institutions. The theatre is the principal amusement. The shore from Portsmouth to Southsea castle presents one of the finest bathing places in the kingdom. Portsmouth received its first charter from Richard Cœur de Lion. The earliest mention of this place occurs in the Saxon Chronicle, A. D. 501. Population of Portsmouth, 7269; Portsea and Southsea, 34,785; seventy-two miles southwest of London; lon. 1° 6′ W.; lat. 50° 47′ N.

Portsmouth, the largest town of New Hampshire, is a port of entry, and the only seaport in the state. It is situated on the south side of Piscataqua river, on a beautiful peninsula, three miles from the sea, fifty-six miles north by east from Boston, and 491 from Washington; lat. 43° 4′ N.; lon. 70° 45′ W.; population in 1810, 6934; in 1820, 7327; in 1830, 8082. Portsmouth is well supplied with houses of public worship, and contains a custom-house, an insurance office, and five banks, including a branch of the U. States bank. As a great portion of the trade from the interior of New Hampshire centres at Boston, and a part at Portland, Portsmouth has not a sufficient commerce with the interior to make it extensive and flourishing. Still it has considerable trade. The shipping owned in New Hampshire in 1828 amounted to 26,253 tons, and nearly all of it must have belonged to Portsmouth. The harbor is one of the best in the world. It has forty-two feet of water, at low tide, through the whole channel, and the current is sufficient to prevent its freezing. It is admirably defended against storms, and is protected by fort Constitution, on Great island, and fort M'Clary, opposite to it, in Kittery. There are also three other forts built for the defence of the harbor, which are not garrisoned. There is a light-house on Great island. Portsmouth has suffered much by fires. In 1802, 120 buildings were destroyed; in 1806, twenty, including the Episcopal church; in 1813, 173. The parts which were destroyed have been mostly rebuilt of brick. Portsmouth was settled under the auspices of sir Ferdinando Gorges and captain John Mason, in 1623, and was incorporated by charter, in 1633. On Badger's island, in this harbor, during the revolution, the first line-of-battle ship was built in the U. States; it was called the *North America*. On Navy island, in the Piscataqua, opposite to Portsmouth, is a navy-yard of the U. States. The island belongs to the general government, and is convenient for building ships of war, and is well furnished for this purpose.

Portugal; a kingdom in the southwestern corner of Europe, on the western side of the Spanish peninsula, lying between latitude 36° 56′ and 42° 7′ N., and between longitude 7° 34′ and 9° 30′ W., with Spain on the north and east, and the Atlantic ocean on the south and west. It is nearly in the form of a parallelogram; its length from north to south is 350 miles; its average breadth, about 115; its superficial area, 41,500 square miles. The population was estimated by Balbi, in 1822, at 3,173,000; in 1826, it was stated at 3,214,000. The state is composed of the kingdom of Portugal, comprising the provinces Entre Minho e Douro, Tras os Montes, Beira, Estremadura, and Alen Tejo, and the kingdom of Algarve. In Asia, Portugal possesses the city of Goa (q. v.), Diu on the coasts of Cambay, a part of the island of Timor, and Macao (q. v.), with a total population of 576,000; in Africa, the island of St. Thomas and Prince's island on the coast of Guinea, the Azores, Cape Verd and Madeira islands in the north, some factories in Senegambia, a part of Angola and Benguela, and the captain-generalcy of Mozambique, with a total population of 1,057,000. In America, it retains nothing of its former immense possessions. (See *Brazil.*) The face of the country is, in general, mountainous, and has but two plains of considerable extent, that of Alen Tejo and that of Beira. The principal mountain ridges are merely spurs of the great Spanish system (see *Spain*), from which descend the largest rivers of Portugal, the Tejo, or Tagus, the Guadiana, the Douro (in Spanish, *Duero*) and the Minho. The valleys, particularly in Minho and Tras os Montes, are remarkable for beauty and fertility. Mineral springs abound. Although the country lies in the warmer portion of the temperate zone, the climate is by no means so hot as in the central and southern parts of Spain; the sea breezes temper the heat on the coasts, and the north winds refresh the interior. The air is remarkably mild and healthy. In January begins a most delightful spring; from March the weather is unsettled, sometimes rainy, and sometimes dry and hot. The harvest is in June. From the end of July to the beginning of September, vegetation is parched by the glowing rays of the sun; and although the weather is, taking the year through, very favorable to cultivation, yet agriculture sometimes suffers from this drought. Artificial irrigation is little practised except in gardens. Rain rarely falls in summer; but, though the days are hot, the evenings and nights are cool. When the first rain falls in September, the earth is again covered with a fresh green, a second spring begins, and the fruit trees are decked anew with blossoms. The winter sets in towards the close of November, and is accompanied by violent showers of rain, which are not, however, of long continuance, but alternate with pleasant weather. In the northern part of the country only does the cold continue for any length of time; in the south, snow is a rare phenomenon. Thunder storms occur only in autumn and winter.—Portugal is rich in natural productions, but wants the cultivation of industrious hands. But the climate and the fertility of the soil incline the Portuguese, like most other southern nations, to indolence; and they engage more readily in commerce than in agriculture or manufactures. The rich mines of precious metals are now neglected on account of the want of hands and fuel. The only mines worked are some of iron in Estremadura. Copper, iron, arsenic, bismpth, and fine marbles, are found in several provinces, but precious stones are rare. Salt-springs are not numerous; salt is chiefly obtained from sea-water. The corn trade is also less productive than formerly; for example, in the thirteenth century, when Portugal exported corn. The discoveries of new countries, and their consequences, emigration to the colonies, and increasing commerce, withdrew so many hands from agriculture, that this branch of national industry began to decline in the fifteenth century. In addition to these causes, the ignorance of the peasantry, the oppressions to which they were exposed, the wealth of the clergy, the deficiency of beasts of burden, and the absence of all facilities of transportation, contributed to the decline of agriculture; and, notwithstanding the efforts of the government, since the administration of Pombal, to revive it, the importation of corn has continued to be necessary. The potato is not so much cultivated as the root of the less nourishing *helianthus tuberosus* (Jerusalem artichoke). Excellent fruit is raised in abundance, and exported in considerable quantities. Oil is also made, but in so unskilful a manner as to be of inferior quality; the best is from Algarve. Wines of several sorts, both dry and sweet, are produced; the red Port wine (q. v.) is exported, but in less quantities than formerly, chiefly to England. In 1765, with a view to diminish the disproportion between the cultivation of the vine and of grain, all the vineyards on the Tagus, Mondego and Rouga (with the exception of some districts in Estremadura producing excellent wines), were, by order of government, converted into corn lands. About one third part of the vineyards was thus destroyed; but, after the fall of Pombal, many proprietors planted vines again, as this mode of employing the land was more profitable than tillage. Hemp and flax are raised in the northern districts, but by no means sufficient for the consumption. In many parts of the country, wood is scarce, on account of the little care paid to the forests. Although the country affords excellent pastures, grazing is little attended to, partly owing to summer droughts, and partly to the want of artificial meadows, which are to be found only in Minho. It is also discouraged by the great number of holydays, which amount to nearly one third of the year, and on which abstinence from butcher's meat is required. It is most successfully practised in Beira, Minho and Estremadura. Oxen are used for draft. The horses are small, light, and well formed, but not numerous. Mules are in common use. Sheep are raised in greatest numbers in Beira; the wool resembles the Spanish, but is not so fine. Cows are not much used for milk, which is obtained chiefly from goats. Butter and cheese are imported from England and Holland. The Portuguese swine resemble the Chinese variety, and are very fat. Turkies are raised in great numbers. The bees do not yield wax enough for the churches. The culture of silk, which was formerly extensively carried on, has been in some degree revived in recent times, and, in 1804, yielded 61,700 pounds of silk. Deer, rabbits, hares, and wild boars, are the only game. The birds are not numerous, except red partridges. The rivers, particularly the Tagus, abound in fish; but the consumption is so great that stock fish and salt fish are carried to the country by the English, Americans, and the northern nations, although in the sixteenth century the Portuguese were largely engaged in the Newfoundland fishery. To the prevalence of entails, and the accumulation of the landed property in a few hands (with their consequence that the cultivator is rarely the proprietor of the soil), is to be attributed the smallness of the population. The nobility, now less numerous than formerly, is divided into the higher and lower; the former, in 1805, consisted of 35 families, many of which are opulent. The national character appears to most advantage in the country and the small towns, particularly in the northern provinces, where the Portuguese is friendly, polite, hospitable, frank, moral, temperate and sober. They have inherited the old national hatred against the Spaniards. There are few public amusements except bull-fights. The number of ecclesiastics is stated by Balbi not to exceed 29,000. The king appoints the patriarch, who resides at Lisbon, and has under him nine bishops, five European and four foreign; the ten other Portuguese bishops are under the jurisdiction of the archbishops of Braga and Evora, the former of whom is styled the *primate of the kingdom*. All the bishops are nominated by the king. In 1821, according to the same author, there were 360 convents for men, with 5760 monks, and a revenue of 607½ million reis, and 138 convents for women, with 5903 sisters, and a revenue of 363 million reis. The university of Coimbra has 1600 students. In the capital are four schools for the learned languages, and other useful institutions. The college for young noblemen, established in 1761, is one of the best institutions for education. Little has been done for popular education. Of late years the useful arts have made progress, but few of the products of Portuguese industry can compare with the corresponding articles of foreign manufacture; the most important are those of wool, silk, cotton, linen, hats and glass. The most of the manufactories of woollen goods belong to the king, who leases them for a certain number of years to particular companies, with the right of exclusively carrying on the business. The most important manufactories of silk are in Lisbon, Braganza, Oporto, Beja, Mondim and Almerim, and, prior to 1808, employed 27,000 men. The internal commerce suffers from the want of good roads. Canals there are none, and the few navigable rivers are not so at all seasons. The remains of the Portuguese colonial possessions, and the empire of Brazil, of which the independence, at first at least, was rather an advantage to the mother country, serve to maintain the commerce of Portugal. The exports to those countries amounted, before the late troubles, to $16,000,000, and the imports from them to 13,000,000; the imports from other countries were estimated at $17,000,000, and the exports to them at about 12,000,000. As Portugal possesses comparatively few commercial resources in agriculture, the products of manufacturing industry must have formed a considerable item in the sums above-mentioned. The foreign trade is chiefly in the hands of the English, and the direct trade between Great Britain and Portugal was formerly carried on chiefly in English bottoms; but more recently about half the ships engaged in it are Portuguese, and the trade with Ireland is almost wholly carried on by Portuguese vessels. The revenue, in 1827, was $8,500,000; the expenditure, $11,000,000; the public debt, in 1824, was $41,500,000. The army, in 1827, consisted of 50,638 men; besides 27,110 of militia. The navy of Portugal, in the fifteenth and sixteenth centuries, the largest in the world, perished during the Spanish domination; and, although revived under the first princes of the house of Braganza, it again declined. Pombal created a naval force of ten ships of the line and twenty frigates. In 1823, the navy consisted of four ships of the line, eleven frigates, and thirteen smaller vessels. The best sailors are from Algarve and the Azores; the only naval station is Lisbon, where there are an arsenal, dock, marine school, &c. Portugal and Algarve had been divided into 44 comarcas; but the civil, military and ecclesiastical, financial and judicial powers ran into each other in such a manner as to render a uniform administration impossible. The cortes, therefore, divided the kingdom into thirteen provinces, and simplified the administration of all the departments. In 1749, the king of Portugal received from Benedict XIV the title of *rex fidelissimus*; and his *most faithful majesty* styles himself, "king of Portugal and Algarve, of both sides of the sea in Africa, lord of Guinea and of the navigation, conquests, and commerce of Æthiopia, Arabia, Persia and India." The heir to the throne is styled *prince-royal*, his eldest son, *prince of Beira*, the other royal children, *infantes* and *infantas of Portugal*. There are seven orders of knighthood; the military order of Christ; the order of San-Jago, for civil merit; the order of Avis, for military merit; the female order of S. Isabella; the military order of the Tower and Sword (founded 1459, revived 1805); the order of Villa Vicosa, or the immaculate conception; and the order of Malta.—*Braganza Line of Princes.* John IV, proclaimed king 1640, died 1656. Alphonso VI died 1683. Pedro II died 1706. John V died 1750. Joseph I died 1777. Maria Francisca Isabella died 1816. John VI, emperor and king, died 1826. Pedro, emperor and king, abdicated the throne in favor of his daughter doña Maria (born 1819), 1827. Miguel, second son of John VI (born 1802), usurped the crown, 1828.

History. I. *Earliest Period, before Portugal formed a separate Kingdom, from the Christian Era to A. D.* 1139. The Phœnicians, Carthaginians and Greeks early traded to this part of the peninsula, which was afterwards conquered by the Romans. (See *Lusitania*, and *Hispania*.) The latter introduced among the inhabitants, a branch of the wide-spread Celts (q. v.), their own civilization; the country was, several centuries later, inundated by the Germanic tribes (see *Alans*, *Suevi*, *Goths*, and also *Vandals*), and in the eighth century (712) was conquered by the Saracens. (See *Moors*.) When the gallant Spaniards of the Christian kingdoms of Castile and Leon (see *Spain*) finally wrested the country between the Minho and the Douro from Moorish hands, they placed counts or governors over this region. Henry the younger of Burgundy, whose grandfather Robert I, duke of Burgundy, was grandson of the French king, Hugh Capet, came into Spain, about 1090, to seek his fortune with his sword, in the wars against the Moors. Alphonso VI, king of Castile and Leon, gave to the chivalric stranger the hand of his daughter in reward for his services, and appointed him (1094) count and governor of the conquered districts, which comprised the provinces Entre Minho e Duero, Tras os Montes, and a part of Beira, and the harbors of Oporto, from which Portugal is said to have derived its name. (See *Oporto*.) The count resided at Guimaraens, owed feudal services to the Castilian kings, but was permitted to hold, in his own right, whatever conquests he should make from the Moors beyond the Tagus. On his death (1109), Alphonso rendered the dignity of count hereditary in Henry's family, and fortune favored their arms. Henry, and still more his son Alphonso I, were successful in their wars. The latter, threatened by the Moors in 1139, advanced to meet them, and gained the brilliant victory of Ourique. He was saluted on the field, king of Portugal.

II. With this event begins *the Middle Age in the History of Portugal* (1139—1495), which extends to the reign of Emanuel the Great, or the establishment of the Portuguese colonial dominion. The elevation of Portugal to naval and commercial power was the result of its internal organization. The cortes of Lamego confirmed Alphonso in the royal title which he had received from the soldiers in 1143, or, according to some, 1145, and, in 1181, gave to the new kingdom, which was acknowledged by the pope, Alexander III, a code of laws and a constitution. The crown was made hereditary in the royal family, according to the rules of primogeniture, but could pass to the collateral lines only with the consent of the estates. In the failure of male heirs, the daughters were to inherit the crown. The code of laws, which Alphonso had caused to be drawn up, was accepted, and the independence of the newly established throne solemnly declared. The king himself renounced for any of his successors, who should consent to become tributary to a foreign power, the right to inherit the crown. The form of government, however, prepared by the cortes of Lamego, was by no means very definite, and the fundamental laws there promulgated were far from being kept inviolate. Alphonso himself made his kingdom tributary to the pope, but maintained his regal dignity against the kings of Castile and Leon, with whom he was frequently at war. He extended his dominions to the borders of Algarve, and took Santarem in 1143. The capture of Lisbon (1147), which was effected by the aid of some English crusaders and Hanseatics, who ascended the Tagus, was one of the most brilliant events of his warlike life. In 1162, he founded two military orders, the order of Avis (a village near Alentejo), and the order of S. Miguel del Ala. Alphonso I died 1185. One of his successors, Sancho II, lost the throne (1245) in his disputes with the clergy, by the decision of Innocent IV. Alphonso III (reigned 1245—79) completed the conquest of Algarve, which had been undertaken by Sancho I, and received the surname of the *Restorer* (*O Restaurador*). He defended the rights of the crown against the church. Among the Portuguese monarchs, Dionysius (1279—1325) is eminently conspicuous; he deserved the glorious epithets, which a grateful posterity conferred on him, of the "just," the "husbandman" (*labrador*), the "father of his country." He opposed with prudence and firmness the encroachments of the clergy, who, under his predecessors, had disturbed the public peace, and claimed an exemption from taxes. He remained on terms of peace with Nicholas IV, the most arrogant of pontiffs, although his measures for preventing the accumulation of landed property in the hands of the clergy, would not allow him to conciliate the good will of the papal court. Himself a scholar and a poet, he was the most generous patron of learning among the princes of the age: he left a monument of his zeal for science, in the college founded by him at Lisbon, which, in 1308, was transferred to Coimbra. He was the first to turn the favorable position of the country for commerce to account, and, by awakening the enterprise of his subjects, he laid the foundation of the greatness of Portugal in the succeeding century, although he was involved in wars with Castile (1295—97), and, in 1299 and 1320, in civil feuds with some of his own family. The policy of this king had the most happy influence on manufactures, commerce, agriculture and navigation, and the prosperity of the towns placed the citizens in Portugal, as well as in Spain, by the side of the feudal nobility and the clergy, as a third estate of the realm. He instituted the order of Christ, which, in 1319, obtained the estates of the Templars, on the abolition of that order. He was succeeded by Alphonso IV, and the latter by Pedro I, husband of Ines de Castro (q. v.), 1357. With the death of Ferdinand the Gentle, son of Pedro the Cruel, the male line of the Burgundian princes became extinct in 1383. His daughter Beatrice, wife of the king of Castile, should regularly have succeeded him; but the Portuguese were so averse to a connexion with Castile, that the brave John I, natural son of Pedro, was saluted king by the estates. He maintained possession of the throne, having, with the assistance of his general, Alvaro Nunes Pereira, defeated the Castilians at Aljubarotta, in 1385. With him begins the native line of Portuguese kings. After having concluded a peace with Castile in 1411, this excellent prince turned his attention to the improvement of the country. He ruled, with a wise moderation, a turbulent people and a haughty nobility, whose power had been increased by the concessions which he had been obliged to make, to secure their concurrence in his accession to the throne. He transferred the royal residence from Coimbra to Lisbon. In his reign began those foreign conquests, which made the greatness of Portugal. His able sons completed what had been commenced by the father, who died of the plague, in 1433. After the conquest of Ceuta, on the northern coast of Africa, in 1415, where the brave princes Edward, Henry, Pedro, received the honor of knighthood from the hand of their father, Henry (q. v.) the Navigator first set on foot those enterprises of discovery and commerce, which raised Portugal above all her contemporaries. He founded the first Portuguese colonies, Porto Santo (1418), Madeira (1420), the Azores (1433), and those on the Gold Coast of Guinea. The reigns of his son Edward (till 1438), and his grandson Alphonso V, were less brilliant than that of John I; but the latter was surpassed by that of John II, the ablest king that has occupied the throne of Portugal. In his reign began the violent struggle with the nobility, whose power had gained great accessions under his indulgent predecessors. The grants of the crown lands were revoked, and the judicial privileges of the nobility were restricted by the appointment of judges, who were learned in the profession, and not nobles. The king caused the powerful duke of Braganza, the chief of the turbulent nobles, to be beheaded, and the new leader of the malcontents, the duke of Viseo, was put to death by the king's own hand, in 1483. The expeditions of discovery were conducted with ardor, and often with scientific method. The rich profits of the trade with Guinea supplied resources for new enterprises. The active spirit, which was now more and more evidently developed among the Portuguese, was quickened by the Jews, 83,000 of whom, driven from Castile, were received into Portugal on the payment of a capitation tax, and the most learned of this nation were then to be found in Portugal. In 1481, John sent two experienced men to attempt to reach the East Indies by land, the commercial wealth of which was the great object of his enterprises. In the same year, Diaz (q. v.) returned from a voyage in which he had discovered the southern cape of Africa, to which the king, foreseeing the great importance of the discovery, gave the name of the *cape of Good Hope*. The success of these expeditions, and the riches which the commerce of the newly discovered countries poured into Portugal, may excuse the neglect with which the proposals of Columbus, to seek new lands in the west, were received at the Portuguese coast. But after the happy issue of that great discoverer's enterprise was known, John also sent out a fleet to the west. Thence arose the dispute between Portugal and Castile, which pope Alexander VI finally settled by the line of demarkation, drawn 100 leagues west of the Azores and Cape Verd islands, and separating the future conquests of the two crowns. Thus was established, by Portuguese policy and energy, that colonial system with which begins the modern history of Europe.

III. *The Modern History of Portugal* extends, therefore, from 1495 to 1820, from the most flourishing period of the country to the restoration of the cortes, and of a free constitution. This period embraces three epochs;—1. that of the commercial grandeur of Portugal, from 1495 to the extinction of the Burgundian line in 1580; 2. that of the decline of Portugal under the dominion of Spain, 1580—1640; and, 3. that of the history of Portugal under the house of Braganza, and British influence, to 1820.—(I.) *The Golden Period of Portugal* (1495—1580). What John II had begun with such fair prospects, was continued under the fortunate reign of Emanuel (1495—1521). In 1497, he fitted out an expedition of four ships, under Vasco da Gama (see *Gama*), which arrived safely at Goa; and thus was the passage to India by sea laid open by the Portuguese. In the beginning of the sixteenth century, the great Almeida (q. v.), first Portuguese viceroy in India, conquered Ceylon. Albuquerque (q. v.) made Goa, the most important harbor in India, the capital of Portuguese India, and traded to the Moluccas. Lope de Soares opened a commerce with China in 1518. Emanuel ruled from Babelmandel to the straits of Malacca, and the power of Portugal had now reached its height. (See *East India Companies*, and *India*, division *Portuguese India*.) On this distant stage were performed great deeds of heroism; and this is the most glorious period of Portuguese history. The national spirit of the people was animated with youthful force and fire, and produced heroes, inspired solely with a zeal for the honor and grandeur of their country. Lisbon became the most important commercial city of Europe; but the wealth which commerce accumulated was hardly sufficient to meet the expenses of the campaigns in Africa, where the arms of Emanuel were less successful. The king of Congo had, indeed, allowed himself to be baptized by the missionaries, without whom no discovery-ships then sailed, and sent his two sons to Portugal, to be educated, and the colony on the Guinea coasts, from which all other nations were excluded by the Portuguese, was a source of great wealth; but the enterprises in Northern Africa were unsuccessful. The unfavorable character of the country prevented a rapid progress, and it is highly probable that Venice and Spain, jealous of the Portuguese prosperity, secretly afforded assistance to the Moorish princes. The fame of Emanuel's conquests in India was no indemnification for the depopulation of Portugal, by the loss of so many of her most vigorous youth, sent to extend or defend those conquests. In the reign of John III, son of Emanuel (1521—57), the Indian discoveries and commerce were still further extended; but the consequences of the rapid accumulation of the precious metals at home, without a corresponding increase of domestic industry, already began to appear. The inquisition was introduced in 1536, to be employed against those Jews who had adopted the externals of Christianity. The wise John II had received into the kingdom a great number of those whom the intolerant rigor of Ferdinand and Isabella had driven from Spain; but they were still treated with so much severity, that Emanuel had at first intended to extend to them greater indulgence. But in the first intoxication of his passion for his wife, the beautiful Eleonora, sister of Charles V, the old king was persuaded to proceed with such rigor against the Jews, as to require them to embrace Christianity, under the penalty of being deprived of their children and made slaves. Whether they found means to prevent the execution of this cruel order, or whether Emanuel feared the effects of their despair, it is certain, that he allowed them twenty years for their conversion. This measure led a great many of the Jews to conform publicly to the Christian usages, while they secretly adhered to their faith. The inquisition practised the most revolting cruelties on their descendants. Still more injurious in its consequences than the inquisition, was the admission of the Jesuits into the kingdom by John III (1540), who received them into his dominions earlier than any other European prince, as if he had been doomed to undermine the prosperity of his kingdom. The artful Jesuits gladly allowed themselves to be employed as preachers of the faith in India, where the Franciscans had hitherto been principally employed. The education of his grandson, Sebastian, the heir apparent to the throne, was likewise intrusted by John to the Jesuits, the worst tutors of princes. They inspired the young prince with that spirit of bigotry, and that fanatical ambition, which led to his death. He resolved to reduce the Moors in Africa (an attempt in which his powerful predecessors had always failed), and persevered in his projects with a wilful obstinacy, in opposition to the remonstrances of his wiser counsellors. In 1578, having, as is supposed, lost his life in the battle of Alcassar, he left his throne without an heir; and from this period Portugal sank rapidly from her former prosperous condition.

(2.) *Portugal under the Dominion of Spain* (1580—1640). After the short reign of the old and feeble Henry, uncle of Sebastian, Philip II (q. v.) of Spain, the most powerful candidate for the throne, obtained possession of the kingdom by the victory of Alcantara, and Portugal had the misfortune to be annexed to a kingdom, which, from this time, was hastening its own decline by a series of unsuccessful wars, and by its unwise administration. Philip II introduced the censorship (Dec. 4, 1586), and overthrew four Pseudo-Sebastians. (See *Sebastian.*) England and Holland, the powerful enemies of Spain, now attacked the defenceless Portugal, the wealth of which promised so rich a booty, and whose possessions were now gradually torn away. The old heroic spirit of the nation was quenched in the last days of its independence, and the Portuguese had made themselves so much hated by their arrogance and severity, that the oppressed princes and people of Asia were eager for any change. Spain made no exertions in favor of a nation which she had involved in her own declining fortunes. The Dutch conquered the Moluccas (q. v.), and, in 1624, half of Brazil, which had been discovered (1500) through a fortunate accident, in the flourishing period of the reign of John II, by Alvarez de Cabral. They took possession of the settlements on the coast of Guinea in 1637, and forced their way into the rich markets of India, where they pressed hard upon the Portuguese. To these losses was added the rapacity of the Spaniards, who alienated the finest domains of the Portuguese crown. The Portuguese nobility, exasperated by this oppression, and the contemptuous conduct of Olivarez, minister of Philip IV, entered into a conspiracy, which was planned and executed with great art, and, December 1, 1640, placed on the throne John IV, duke of Braganza, a descendant of the old royal family.

3. *Portugal under the House of Braganza, and dependent on the Policy of England* (1640—1820). In justification of this revolution, which restored the independence of Portugal, the cortes of 1641 issued a manifesto, addressed to the powers of Europe. The war with Spain, which was the result of this measure, was terminated by a treaty of peace in 1668, and a renunciation, on the part of Spain, of her claims to the Portuguese crown. A treaty of peace was also concluded with Holland, under English mediation, by Alphonso VI, successor of John, and Pedro II (who, in 1667, had deposed his brother Alphonso), by which Brazil was restored to Portugal; but its former greatness could not now have been restored, even had the princes of this line displayed as much vigor and wisdom as some of them showed good intentions. A commercial treaty had been concluded with England under the first Braganza prince, and, in 1703, a new treaty was concluded by the English ambassador, Mr. Methuen, which secured to England the advantages of the newly discovered gold mines in Brazil. From this time the relations with England continued to become more intimate, until Portugal was no longer in a condition to maintain an independent attitude in European politics. The cortes, in the ordinance for assembling which the king had expressly required, that the third estate should send as deputies no persons who held offices in the department of finance, in the judiciary,

the army or the navy, was not summoned after 1697. During the long reign of John V (1707—50), some vigor was exerted in regard to the foreign relations, and something was attempted for the promotion of the national welfare at home (the restrictions on the power of the inquisition, and the foundation of an academy of Portuguese history, for example); but, in the former case, without decisive consequences, and, in the latter, without a completion of the plans proposed, while the sumptuous monastery at Mafra, and the dear-bought permission to institute a patriarch of Lisbon, exhausted the resources of the country. Under his son and successor, Joseph I, the marquis of Pombal (q. v.), a vigorous reformer, such as Portugal required, administered the government. He attacked the Jesuits and the nobility, who, during the preceding reigns, had exercised a secret influence in the government. The exposure of the power of the Jesuits in Paraguay (q. v.), their conduct at the time of the earthquake in Lisbon (in 1755), and the conspiracy against the life of the king (1759), led to the suppression of the order. In 1757, they had been deprived of the post of confessors to the royal family, and forbidden the court. Two years after, all the Jesuits were banished the kingdom, and their estates were confiscated. The brave count of Schauenburg Lippe, to whose services against Spain (1760) Portugal was so much indebted, likewise reformed the Portuguese army; but, soon after his departure, the effects of his improvements disappeared. On the accession of Maria Francisca Isabella, eldest daughter of Joseph (in 1777), Pombal lost the influence which he had possessed for twenty-five years. To him Portugal owed her revival from her previous lethargy; and although many of his useful regulations did not survive his fall, yet the enlightened views which he introduced, and the national feeling which he awakened, were not without permanent effects. During the reign of Maria, the power was in the hands of an ignorant nobility, and a not less ignorant clergy. In 1792, on account of the sickness of the queen, Juan (John) Maria Joseph, prince of Brazil (the title of the prince-royal until 1816), was declared regent (see *John VI*), and, in 1799, her malady having terminated in a confirmed mental alienation, the prince was declared regent with full regal powers, but made no change in the policy of the government. His connexions with England involved him in the wars of that power against France; and the Portuguese troops distinguished themselves, by their valor, in the peninsular campaigns. But commercial distress, the accumulating debt, and the threatening language which Spain was compelled by France to adopt, led to a peace with France in 1797. The disasters of the French arms, in 1799, encouraged the regent to renew hostilities, in alliance with England and Russia; but after general Bonaparte had established his authority, Spain was obliged to declare war against Portugal (1801), which, however, was terminated the same year by the treaty of Badajoz, by which Portugal was obliged to cede Olivenza, with the payment of a large sum of money, to Spain. Portugal, meanwhile, preserved a mere shadow of independence by the greatest sacrifices, until at last Junot entered the country, and the house of Braganza was declared, by Napoleon, to have forfeited the throne (on account of the refusal of the prince to seize the English merchandise in his dominions). The regent now threw himself entirely into the arms of the English, and, Nov. 29, 1807, embarked for Brazil. Junot entered the capital the next day, and Portugal was treated as a conquered country. An English force was landed, and, in the northern provinces, numerous bodies of native troops determined to sustain the struggle for freedom; a junta was also established in Oporto to conduct the government. After some hard fighting, the decisive battle of Vimeira took place (Aug. 21, 1808), which was followed by the convention of Cintra, and the evacuation of the country by the French forces.—See Thiebault's *Relation de l'Expédition de Portugal* (Paris, 1817). The Portuguese now took an active part in the war for Spanish independence. (See *Spain.*) On the death of Maria, John VI ascended the throne of Portugal and Brazil. This transference of the court of Lisbon into an American colony was followed by important consequences: firstly, that Brazil attempted to withdraw itself from dependence on England, and, secondly, that that colony gradually became a separate state; in Portugal, on the contrary, the influence of England continued, and the condition of the kingdom was not essentially changed. The peace of Paris (May 30, 1814), by no means, therefore, corresponded to the expectations of the nation, although it had exerted itself vigorously in the common cause, and Spain evaded the restitution of Olivenza, which had been provided for by the congress of Vienna, at the same time that Portugal was required to restore French Guiana to France. The court of Rio Janeiro, therefore, occupied the Banda Oriental (q. v.), and Portugal was involved in new difficulties with Spain. (See *Brazil.*) In 1815, the inquisition was abolished in the Portuguese dominions; the Jesuits were refused admission into them; and the Jews, at the request of the pope (1817), were allowed the same privileges which they enjoyed in the Roman states. The absence of the court was viewed with dislike by the nation; the military were dissatisfied with the influence of marshal Beresford (q. v.), and the general feeling required some fundamental changes in the administration and constitution of government: thus commences the recent history of Portugal.

Portugal since 1820. On the morning of Aug. 24, 1820, began the revolution, in which the army and citizens acted in concert. The soldiers were induced by their officers to swear obedience to the king, the cortes, and the constitution which should be adopted. The magistrates and citizens declared in favor of the measure, and a junta was established, which addressed a declaration to the nation, in which they assert that the convocation of the cortes, and the adoption of a new constitution, were the only means by which the state could be saved. All the garrisons from Minho to Leyria embraced the constitutional cause, and the troops of the regency, established at Lisbon, refused to act against their countrymen. September 15, all the troops and the citizens in Lisbon declared for the king, the cortes, and the constitution. The revolution was attended by no violence nor bloodshed. A provisional government was established, which, October 1, formed a union with the junta of Oporto. Count Palmella (q. v.), the head of the royal regency, was despatched to Rio Janeiro, with an account of what had happened, and a petition, that the king or the prince-royal would return to Lisbon. The mode of electing the cortes was settled chiefly in imitation of the Spanish constitution, and the liberal party, which was desirous of the immediate adoption of that constitution, obliged the supreme junta, November 11, to administer the oath of obedience to it to the troops. The latter took the oath, but the eighth battalion, under colonel Sepulveda, acceded to this measure only to prevent a civil war. On the 14th, four members of the junta and 150 officers, dissatisfied with this act of violence, resigned their posts; and it was soon after agreed by a meeting of officers, with the general approbation, that no part of the Spanish constitution should be in force, excepting the regulation of the mode of election, until acted upon by the cortes. The elections fell chiefly upon the clergy, lawyers and officers, and the first session of the cortes was opened Jan. 26, 1821, under the presidency of the archbishop of Braga. It proceeded to name a regency and a ministry, sanctioned the insurrections of Aug. 24, and Sept. 15, 1820, and abolished the inquisition. March 9th, the articles of the new constitution, securing freedom of person and property, the liberty of the press, legal equality, and the abolition of privileges, the admission of all citizens to all offices, and the sovereignty of the nation, were adopted almost unanimously. There was more diversity of opinion concerning the organization of the chambers, and the royal veto; but large majorities finally decided in favor of one chamber and a conditional veto. After some disturbances in Brazil (q. v.), the king sailed for Portugal, where he was not permitted to land (July 4) until he had given his consent to several acts of the cortes, imposing restrictions on his power. On landing, he immediately swore to observe the new constitution, and concurred, without opposition, in all the succeeding acts of the cortes. The Austrian and Russian ambassadors left the country; the separation of Brazil from Portugal (1822) followed, and the country was disturbed by several movements in favor of the old system of government. The constitution was finally completed and sworn to by the king, Oct. 1, 1822, and the session of the extraordinary cortes was closed November 4. The ordinary cortes was convened December 1, and was occupied to the end of its session (March 31, 1823) in reorganizing the different departments of the administration. France declared that she had no intention of interfering with the affairs of Portugal, and the duke d'Angoulême refused to enter into any connexions with the Portuguese insurgents under count Amarante, who was driven, after several sanguinary engagements, from the northern provinces, and fled into Spain. A Portuguese regency was established in Valladolid (May, 1823), under the presidency of the patriarch of Lisbon, who had been banished the kingdom; and the plot for overthrowing the constitution, at the head of which was the queen (a Spanish infanta), and in which several of the nobility and clergy were engaged, was now ripe for execution. Dom Miguel (q. v.), after assuring his father of his de termination to maintain the constitution, went to Villafranca, where he was joined by several nobles and many officers, with several regiments of troops, and invited the nation to rise, under the royal standard, against the anarchical policy of the cortes. At the same time, general Sepulveda, in Lisbon, had been gained over by some members of the cortes, and the ministry, to assist in the overthrow of the liberal party, and to effect the introduction of a new constitution with two chambers; but Sepulveda, who was already suspected by the cortes and the national guards, was prevented from accomplishing the plan of carrying off the king, and did not join the prince till the evening of May 29. But the garrisons of the provincial towns declared for the Infant; general Rego did the same, June 4; and count Amarante advanced from Spain with his forces. The troops remaining at Lisbon also joined the absolute party, and John VI, yielding to the instances of the soldiery, entered the camp of the Infant, named a new ministry, and declared the constitution of 1822 null. Sixty members of the cortes, finding their cause lost, signed a protest against the new order of things, and the king entered Lisbon, June 5. Petitions were sent up, requesting the king to reassume absolute power, the restoration of which was the object of the counter-revolution. But the king still declared his determination not to comply with this request. The national guards and militia were disarmed; the church property restored; the patriarch of Lisbon recalled; Amarante reinvested with his former rank and rights; several adherents of the cortes banished or imprisoned; and a censorship of the press established. Finally, June 17, a junta was organized, at the head of which was Palmella, to draw up a constitution adapted to a representative monarchy. The theocratical party and the absolutists, supported by France and Spain, and of which the queen was the rallying point, exerted themselves to prevent the establishment of a constitution. The queen returned to Lisbon, June 18, and, a few days after, Amarante made his entry into the capital with his followers to the number of 3000 men; he was created marquis of Chaves (the name of the town where he had organized the insurrection against the Cortes), with an income of $3000. The police, under the direction of the absolutists, now proceeded to prosecutions against the constitutionalists, who were banished into the provinces, and secret societies, particularly those of the freemasons (who were considered to have acted an important part in the revolution), were denounced. Dom Miguel, who had been appointed commander-in-chief, composed his staff of decided enemies to the constitution, and filled the offices in the army with his adherents. The new diplomatic corps in Lisbon began to influence public affairs; several powers congratulated the king and prince on the restoration of legal order; the British court aimed at the recovery of its former ascendency, while the Portuguese endeavored to conciliate the favor of all the great powers, with the hope of preserving Brazil through their interference. The Portuguese commissioners were not allowed to land in Brazil, and the exhausted treasury would not permit the government to execute its plan of an expedition against the country. The intrigues of the absolutists still continued, and a Spanish ambassador, the duke of Villa Hermosa, having appeared at Lisbon (April 7), the queen's party determined to annihilate the hopes of the constitutionalists, and to put an end to the system of moderation (to which the king adhered) at one blow. April 30, 1824, dom Miguel called the troops to arms, and issued proclamations, in which he declared that it was his intention to complete the work of May 27, 1823, and to deliver the king from the pestilent sect of freemasons, &c. On the same day, the ministers and several other civil officers, to the number of about a hundred, were arrested, and no person, not even of the diplomatic corps, was allowed access to the king, until the French ambassador obtained an audience, and was assured by him that every thing had been done without his orders. The Infant, therefore, declared that he had taken these steps on his own authority, to frustrate a conspiracy, which was on the point of breaking out, against the life of the king and the queen. On the representations of the ambassadors, the king ordered the troops to retire to their quarters, and commanded the release of the persons who had been arrested; but May 3, he issued a decree, commanding the summary investigation and immediate punishment of the (pretended) treason; and he pardoned the Infant for having exercised an extraordinary power in the royal name, on account of the urgency of the case. The Infant, however, continued to issue orders on his own authority; the arrests continued; the king was closely watched; and the prince was already talked of for regent. But the ambassadors protested against the violences of April 30, and preparations were made, with the king's consent, for receiving him on board an English ship of the line, lying in the Tagus. May 9, under pretence of making a visit to a palace beyond the Tagus, he escaped to the ship, with his two daughters, and the whole diplomatic corps assembled in the same vessel. The king now deprived the Infant of his command, and summoned him to his presence. The prince obeyed, confessed that he had been deceived and misguided,* and received the royal pardon, with permission to travel. May 14, the king returned ashore, and, June 5, 1824, proclaimed an act of amnesty for the adherents of the cortes of 1820, from which only a few exceptions were made (of the authors of the insurrection of Oporto, August, 1820, and nine superior officers in particular), and on the same day appeared the decree of June 4, reviving the old constitution of the estates, and summoning the cortes of Lamego. At the same time, the junta for the preparation of a constitution was superseded by another, which was directed to make preparations for the election of the deputies of the old cortes. But Spain opposed the convocation of the old cortes, and the influence of the queen and the patriarch was thus revived. New conspiracies were detected against the ministers and the king; in consequence, several arrests were made in October. The ministry was divided in its views, principally in regard to the policy to be pursued towards Brazil, and, Jan. 15, 1825, a new ministry was named. After many difficulties and protracted negotiations, the independence of Brazil was finally acknowledged (Nov. 15, 1825) by John VI, who merely retained the imperial title in his own person. The Brazilians and Portuguese were to be treated by the respective powers as the subjects of the most favored nation. March 10, 1826, John VI died, after having named the Infanta Isabella regent. She governed in the name of the emperor of Brazil, as king of Portugal. April 23, 1826, dom Pedro (IV of Portugal) granted a constitution (*Carta de Ley*), establishing two chambers, and in other respects resembling the French charter. May 2, he abdicated the Portuguese throne, in favor of his daughter doña Maria (he remaining king during her minority), on condition of her marrying her uncle Miguel. But a party (secretly favored by Spain) was formed in Portugal, which aimed at the overthrow of this constitution, which had been sworn to by the queen, by the two chambers, and all the magistrates, and even by dom Miguel himself (in Vienna, Oct. 4, 1826), and proclaimed the prince absolute king of Portugal. The marquis of Chaves and the marquis of Abrantes appeared at the head of the insurgents, and Spain, which alone had not acknowledged the new order of things, assembled an army on the Portuguese frontiers. Portugal, therefore, appealed to England for assistance, and 15,000 British troops were landed in Lisbon; they occupied the most important points; the insurrection was completely put down by the government, in February and March, 1827, and Spain was forced to yield. The cortes, which had been convened in October, 1826, closed its session in March, 1827. In July, dom Pedro named his brother dom Miguel lieutenant and regent of the kingdom, with all the rights established by the charter, according to which the government was to be administered. The prince, accordingly, left Vienna, and, passing through Paris and London, arrived at Lisbon in February, 1828. The cortes was in session, and, on the 26th, Miguel took the oath to observe the charter, in the presence of the two chambers. But the apostolicals or absolutists, to whom the disposition of the regent was well known, already began to speak openly of his right to the throne, and to hail him as absolute king. His ministers were all appointed from that party, except the count Villa Real, and the populace were permitted to add to their cry, "Long live the absolute king," that of "Down with the constitution." March 1, the day fixed by the prince for receiving the congratulations of the functionaries on his return, the palace yard was filled with a crowd, who obliged each person who appeared to join in the shout for the absolute king, and actually committed acts of personal violence on some constitutionalists. The officers of the garrisons favorable to the charter were removed, and their places filled by men devoted to the court. It was now determined that Miguel should go to Villa Viçosa, a town near the Spanish frontier, where he could be supported by the troops of the marquis of Chaves, and be proclaimed absolute king; but this project was frustrated by the decision of Mr. Lamb, the British minister, who counteracted the order for the departure of the British troops, and prevented the payment of the loan made to dom Miguel under the guaranty of the British government. The cortes, being opposed to the designs of the prince, was dissolved March 14, and the recall of the British troops in April removed another obstacle from his path. May 3, he accordingly issued a decree in his own name, convoking the ancient cortes of Lamego, which had not met since 1697. The military in general was not favorable to the projects of the prince, and, May 18, the garrison of Oporto proclaimed dom Pedro and the charter. They were soon joined by the other garrisons, and by the students of Coimbra, and the constitutional army, 6000 strong, advanced towards Lisbon. But they pushed their operations with little vigor, until at length they were met by superior forces and defeated, towards the end of June. The constitutional junta at Oporto dissolved itself, and the troops either forced their way to the Spanish frontiers, or embarked for England. Thus terminated the efforts of the constitutionalists in Portugal, and, with the extinction of that party, the influence of England in the Portuguese government ceased. Miguel now turned his attention to the consolidation of his power; severity and cruelty were his expedients; the prisons were crowded with the suspected, and foreign countries were full of fugitives. The cortes met, June 23, and, with great unanimity (all, whose opposition was feared, being in prison or having taken flight), declared dom Miguel lawful king of Portugal and Algarve, chiefly on the grounds that dom Pedro had become a foreigner by becoming a Brazilian citizen, and was not a resident in the country, and that therefore he could neither succeed to the throne himself, nor name the person who should succeed in his stead. July 4, 1828, Miguel confirmed the judgment of the cortes, and assumed the royal title. He immediately established a special commission to punish all who had taken part in the Oporto insurrection, the members of the commission being to be paid from the confiscations they should make. An expedition was sent out (August 9) against the islands which refused to acknowledge Miguel, and Madeira and the Azores, with the exception of Terceira, were reduced. A new expedition against the latter place (October) failed. In the islands, the same course of condemnation was pursued, that had been practised at home. Since this period, Portugal has been the prey of political and religious bigots. In March, 1830, the regency appointed by dom Pedro, as guardian of his daughter, was installed in Terceira, consisting of Palmella, Villa Flor and Guerreiro. The other islands have since been reduced by the forces of the regency, and subsequently to the return of dom Pedro to Europe, it is well known that he has been making preparations for displacing Miguel from his usurped seat. Meanwhile insurrections have repeatedly broken out at home, but have been suppressed by the vigor of the government and the want of concert in the insurgents. In 1830, it was estimated that the number of prisoners confined for political causes was above 40,000, and that the number of persons concealed in different parts of the country was about 5000. Besides these victims of tyranny, foreign countries, as is well known, have been thronged with Portuguese fugitives. In consequence of some acts of violence, and a refusal of redress on the part of the government, a British fleet was sent to the Tagus to enforce the demands of the English government (May 4, 1831); but on its appearance the concessions required by Great Britain were made. In July (11), Miguel was obliged to suffer a second humiliation of this nature; a French fleet having forced the passage of the Tagus, and taken possession of the Portuguese fleet, in consequence of the demands of the French government, for satisfaction for injuries to French subjects, committed by the Portuguese authorities, not having been complied with. The court of Lisbon was forced, by this vigorous measure, to submit to the terms imposed by the French, which included the dismissal of some of the Portuguese functionaries, an indemnity for the expenses incurred by the expedition, the reversal of all sentences pronounced against Frenchmen for political opinions, and the publication of these terms in the Lisbon Gazette. In August, an insurrection of the troops broke out against Miguel: it was suppressed after some bloodshed; but the extensive preparations of Pedro, for the recovery of the Portuguese throne, render it doubtful whether Miguel will long retain it.—See the works of Murphy, Link, Ruder, Chatelet, Costigan, Southey, &c.; see, also, Antillon's *Geografia d'España y Portuga.* (Valencia, 1815); Balbi's *Essai Statistique sur Portugal* (Paris, 1822), and his *Variétés Politico-statistiques sur la Monarchie Portugaise*; and Miss Baillie's Lisbon in 1821–23

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* He is also said to have confessed all the circumstances of the murder of the marquis of Loule, a royal chamberlain, who had been found dead, March 1.

Portuguese Language and Literature Among the Romanic languages, which originated from a mixture of the Latin and Teutonic, is the Portuguese. It is not a dialect of the Castilian; for, besides the difference in its structure and pronunciation, it was formed earlier than the Castilian. The two resemble each other about as much as the Danish and the Swedish. Respecting the mixture of the Arabic, Fr. Joao de Souza has written a good book (*Vestigios da Lingua Arabica em Portugal*). When Henry of Burgundy took up his residence at Guimaraens, many Frenchmen followed him, which caused a number of French expressions to pass into the language of the country. The national spirit of the Lusitanians always turned with pleasure to the vernacular tongue, and strove to apply it to every branch of literature; yet it cannot be denied that patriotism carries the Portuguese too far in his admiration of his mother tongue. Franc. Diaz Gomes, a celebrated Portuguese author and poet, calls it "rich, melodious, impressive, proper for all subjects, and in its pronunciation corresponding to its orthography." Its delicacy and its richness in songs gave it, even in Spain, the name of the *flower language*. Yet its pronunciation is difficult for the foreigner, particularly its nasal and guttural sounds. In respect to the *j* and *ch*, in respect to the nasal sounds, and the mute endings, its pronunciation is like the French. Sismondi, more wittily than correctly, calls the Portuguese language *un Castillan désossé* (a boneless Castilian), because the Portuguese have generally omitted the middle consonants, and particularly the *l*; as, for instance, in *dòr* for *dolor*, *Afonso* for *Alfonso*. The Portuguese was used earlier than the Castilian, and became the language of the country under Alfonso I, son of Henry of Burgundy. Early epic attempts were followed by books of songs, to which succeeded sonnets, and, in the fourteenth century, prose. The best grammar is Pedro José de Figueiredo's *Arte da Grammatica Portugueza* (Lisbon, 1799), and the best dictionary the revised edition of Bluteau, by the Brazilian Anthony de Moraes Silva (Lisbon, 1789, 2 vols., 4to.). Ribeiro dos Santos has done the most towards investigating the spirit of the Portuguese language. As a conversational language, the Portuguese is considered to have advantages over the Spanish. It is more concise, easy and simple, well adapted for easy conversation; and the social tone and the spirit of the Portuguese are much like what the French probably was in former times, for we still find with the Portuguese a kind of good-natured and artless politeness. The richness of the language in synonymes, diminutives and augmentatives renders it expressive and very various: at the same time it is concise and perspicuous, as almost all the substantives have corresponding adjectives, verbs and adverbs. A number of them cannot be rendered in other languages without paraphrase. The Portuguese language is almost the only monument of the former greatness of the Portuguese empire, for it is yet the general language of commerce in India and Africa. The Portuguese literature is pretty complete without being rich: in all branches we find happy attempts; in none abundance, except in lyric and bucolic poetry. Yet the short period of its bloom has passed. Its poetry has splendor and feeling, much epic dignity, spirit, and dramatic vivacity, but little ideal elevation. It comprises the most important part of the literature, for prose has remained in a backward state in this nation, which, fettered by ignorance, and destitute of philosophy and criticism, could not rise to history or eloquence. The chief causes of this imperfect state of its literature have been the Spanish dominion and the inquisition. It became and remained bombastic and affected: the ancient power, the natural grace, were lost. In the time of Louis XIV, the French were copied, and many Gallicisms were admitted. It was not till the time of Pombal (q. v.) that poets gave elevation to the language. After that time, the prose also became more simple and pure. Pombal was the first who banished the scholastic logic and metaphysics from the lecture-rooms of Coimbra; but the study of the ancient languages continues to be neglected. According to Balbi, there are, in the whole kingdom, not more than eight schools for the Greek language. For their first acquaintance with philosophy, botany, medicine, astronomy, cosmography and Hebrew, the Portuguese are indebted chiefly to the Jews. Scientific studies, especially mathematics and natural history, are not entirely uncultivated, but attract little interest; and it is asserted that, among the 3,000,000 of Portuguese, there are hardly 500 readers of scientific books. According to Balbi, there were printed, from 1801 to 1819, about 1800 new works, of which 1200 were originals, 430 translations, 57 periodical works, 40 new editions. Besides these, the academy of sciences and the university at Coimbra caused 116 works to be printed in the same period. All Portugal had, in 1827, but sixteen printing-offices; one in Coimbra, three in Oporto, twelve in Lisbon. Those three places are also the only ones containing considerable libraries and establishments for the sale of books. How much this little may have been lessened of late, since an outrageous tyranny has been plunging that unfortunate country deeper and deeper into barbarism, we cannot say. The style of the Portuguese prose writers is often embarrassed, obscure, and full of repetitions. Of late years, however, they have been employed on translations of good English and French prose writers, which will contribute to improve the taste of the nation. These translations have been chiefly of novels. Their own novels and tales continue to be written in the style of the first Portuguese work of belles-lettres in prose, a tale of pastoral life and chivalry—*Menina e Moça* (the Innocent Maiden)—by Bernardim Ribeyro (printed with his eclogues, Lisbon, 1559), which gave the tone in Portugal, which Montemayor, a Portuguese, afterwards introduced into Spain, and which, some time later, was imitated in France and Germany. The most popular national romance in Portugal, the *Historia de Carlos Magno e dos doze Pares de França por Jeronymo Moreira de Carvalho* (Lisbon, 1784, 2 vols.), amuses by its comic bombast. Among the best Portuguese original romances are the old *Palmeirim de Ingalterra* (exempted by Cervantes from the flames), written by Franc. de Moraes (an edition of it was printed at Lisbon, 1786, in 3 vols., 4to.), and the *Feliz Independente*, which was translated into Spanish, and in that language went through six editions. The treasures of the Portuguese language may be in some degree judged from the *Catalogo dos Livros, que se hao de ler para a continuçaõ do Diccionario da Lingua Portugueza mandado publicar pela Academia real das Sciencias de Lisboa* (1799). The oldest works mentioned in it are of 1495 and 1502. The former is the *Livro da Vita Christi, por Valentim de Moravia, e Nicolao de Saxonia* (Lisbon, 4 vols., folio); the latter a translation of the travels of Marco Polo and Nicolao Veneto to India, with a map by a Genoese, by Valentim Fernandes (Lisbon, folio). Only one volume of the dictionary of the academy has appeared (in 1793), a thick folio containing A, which letter embraces the fifth part of the words in the language. Respecting the history of Portuguese literature, Bouterwek's *Geschichte der Poesie und Beredtsamkeit seit dem Ende des* 13 *Jahrhunderts* (History of Poetry and Eloquence since the End of the Thirteenth Century, 11 vols.) is the chief work. Sismondi, in his *Littérature du Midi de l'Europe* (4th vol.), has followed this. A short history of the Portuguese language and literature is also to be found in the preface of Joaquim de Santa Rosa de Viterbo's *Elucidaçaõ das Palavras, Termos e Frases que em Portugal antiguamente se usaraõ*, &c., *que hoje regularmente se ignoraõ*, &c. (Lisbon, 1798, 2 vols.), and in Balbi's *Essai Statistique* (Paris, 1822, 2 vols.).—Portuguese poetry flourished earlier than the Castilian, and all accounts of the first civilization of the Portuguese, says Bouterwek, indicate an original poetical direction of the mind of the whole nation. The most ancient known Portuguese poets are of the twelfth century—Gonzalo Hermiguez and Egaz Moniz, whose songs the Portuguese of the present day do not readily understand. In the thirteenth century, the language became more and more regular and distinct. King Dionysius, in the second half of this century, was a patron of literature, and even a poet himself. Alphonso IV and Peter I are mentioned as poets of the fourteenth century. Even in this early period, Italian poetry seems to have had an influence on the Portuguese, as several sonnets prove. Dom Pedro, son of John I, translated some of Petrarch's sonnets. But with the fifteenth century, the era of the heroic age of Portugal, begins the flourishing period of Portuguese literature, when it vied with the Spanish. A tender as well as heroic spirit, a fiery activity, and a soft enthusiasm, war and love, poetry and glory, filled the whole nation, which was carried, by its courage and spirit of chivalrous enterprise, far over the ocean to Africa and India. This separation from home, and the dangers encountered on the ocean, in distant climes and unknown regions, gave their songs a tone of melancholy and complaining love, which strangely contrasts with their enthusiasm for action, their heroic fire, and even cruelty. The *cancioneri* of the time of John II contain such complaints of love, but neither Bouterwek nor Sismondi were able to find these collections. The Portuguese *cancioneiro*, discovered by Joaquim José Ferreira Gordo, at Madrid, in 1790, comprising poems by a hundred and fifty writers of the fifteenth century, is known only by what is contained respecting it in the *Memorias de Litteratura Portug*. The first celebrated Portuguese poet was Bernardim Ribeyro, under Emanuel the Great (1495—1521). He introduced into Portuguese literature the notion of an ideal pastoral life, and was a learned man, esteemed at the court of Emanuel. His romance has been mentioned above. This direction of taste gave rise to the many pastoral poets of Portugal, who are tender, graceful, languishing, but often monotonous and cold. This is a kind of poetry with which our age has little sympathy. The admiral and governor of Madeira, Christovaõ Falcaõ, Ribeyro's contemporary, has expressed the pain of unsuccessful love in the same romantic, mystic tone, in an eclogue of 900 verses. It is a remarkable fact, that several distinguished Portuguese poets composed at the same time in the Castilian language, if they wished to sing of great subjects, for instance, Franc. de Sà de Miranda (*Obras*, Lisbon, 1784, 2 vols.; earlier, 1560, 1569 and 1614), who died in 1558. His two comedies *Os Estangeiros* and *Os Villalpandios* are contained in the second volume of the edition of 1784; but he distinguished himself more in lyric and didactic poetry. Ant. Ferreira, whom the Portuguese call their *Horace*, still more successfully imitated the ancients in the epistle. He died in 1569. His *Poemas Lusitanos* appeared in Lisbon, 1598, 4to., and the most recent edition Lisbon, 1771, 2 vols. His tragedy *Castro* (Ines de Castro, q. v.), in vol. ii of the edition of 1771, is formed after the Greek model, and Sismondi prefers it to the Italian tragedies then existing. They were followed by Pedro de Andrade Caminha (*Poesias*, recent edition, Lisbon, 1791), and Diego Bernardes Pimenta (*Rimas Varias ao bom Jesus*, &c., Lisbon, 1594; *O Lima, em o qual se contem as suas Eclogas e Cartas*, Lisbon, 1596, and *Flores do Lima*, Lisbon, 1596), who died in 1596. Sismondi compares him to Marini. The most celebrated of all Portuguese poets is Luis de Camoens. (q. v.) The best edition of his poems was published under the care of Thom. Jos. de Aquino and Fern. Lobo Surrupita (*Obras de L. de Camoens, Principe dos Poetas de Hespanha, Seg. Edic. Lisb. Na Offic. de S. Th. Ferreira*, 1782 and 1783). It contains a preliminary discourse, the life of the poet, an index, various readings and stanzas, in 4 vols., 12mo. A pretty edition of the Lusiad, in 16mo., appeared at Coimbra, from the printing-office of the university, in 1800, 2 vols., with two engravings, the life of the poet, an index, various readings, &c. The first edition of the Lusiad appeared at Lisbon, 1572, 4to.; his *Rimas Varias*, with a full commentary by Manoel de Faria e Souza, Lisbon, 1685, 1 vol. fol.; the third and fourth volumes in 1688, and the Commentary on the Lusiad. Madrid, 1639, 4 vols. folio. Another commentary is that of dom Manoel de Faria Severin, in the *Obras de Camoens* (Lisbon, 1720); a third is by Manoel Correa (Lisbon, 1613, 4to.), and *Obras do grande L. de Camoens* (Lisbon, 1720, folio); a fourth by Ignacio Garcez Ferreira, *Lusiade Illustrata com varias Notas* (vol. i, Naples, 1731, 4to.; vol. ii, Rome, 1732, 4to.). The hero of Camoens's epic is his country. It breathes the most intense patriotism, a noble pride and an enthusiastic feeling of love, animated by a powerful imagination. This work is the noblest monument of Portuguese greatness, attractive to every one who cherishes patriotic feelings and a love of glory. Several sonnets of Camoens, and other productions (*Rhytmas, Cançaos*, t. ii; *Eclogas*, t. iii; *Comedias; El Rei Seleuco; Os Amphitrioes* and *Filodemo*, with *Fragmentos* and *Obras attribuidas a Luis de Camoens*, t. iv), breathe the spirit of a great and deeply stirred soul. In his dramatic attempts, his countryman Gil Vicente, whom the Portuguese call their *Plautus*, and who died in 1557, was his model. The collection of the dramatic works of Gil Vicente, who preceded the Spanish and English dramatists, and whose fame spread all over Europe, so that Erasmus learned Portuguese, in order to read this pioneer of the modern drama in the original, appeared at Lisbon, 1562, folio (*Copilaçam de todas las Obras de Gil Vicente, a qual se reparte em cinco Livros*). On the model of Gil Vicente, rude as his works were, Lope de Vega and Calderon formed themselves. In Portugal itself, dramatic poetry was neglected. The ruling taste, unfortunately, was pleased only with pastorals. Franc. Rodriguez Lobo brought out tedious pastoral romances, in which, however, some ballads and canzoni breathe a true spirit of poetry; his epic Nuno Alvarez Pereira, High Constable of Portugal (*O Contestabre de Portugal, Poema heroico*, Lisbon, 1610, 4to.) is only rhymed prose; *Eclogas* (1605, 4to.); *A Primavera* (1619, 4to.); *O Pastor Peregrino* (1608, 4to.); and several others. Yet he was the first who showed the purity, tenderness and harmony of which Portuguese prose is capable. The merits of Jeronymo Corte Real are higher, as shown in his *Naufragio, o lastimoso Successo da Pardiçaõ de Manoel de Sousa de Sepulveda e D. Leonor de Sa, sua Mulher* (Lisbon, 1594, 4to.). This poet also sung the famous siege of Diu, valiantly defended by Mascarenhas; he himself was a brave soldier (*Successo do segundo Cerco de Dio, Poema*, Lisbon, 1574, 4to.). He and Lobo showed to Portuguese historians the way in which Joaõ de Barros, a celebrated politician of the time of John III (died 1571), whom Portugal calls her *Livy*, first acquired distinction. His *Asia*, or *Dos Feitos, que os Portuguezes fizeraõ no Descobrimento e Conquista dos Mares e Terras do Oriente* (Lisbon, 1552, folio; second edition, Lisbon, 1553; third edition, Lisbon, 1563; fourth edition, with notes and maps, by J. B. Lavanha, Madrid, 1616, folio), is an important work. Diego de Couto has continued it in his *Asia Portugueza*, which comprises the whole in 14 vols., folio, 1552—1615. Also Fernaõ Lopes de Castanheda, in his *Historia do Descobrimento e Conquista da India pelos Portuguezes* (Coimbra, 1552—1561, 8 vols., folio); Ant. Bocarro, and the famous Portuguese hero Afonso de Albuquerque, in his *Commentarios*, published by his son (Lisbon, 1557, folio); Damiaõ de Goes (translator of the *Cato major* of Cicero), in his *Chronica do Folic. Rey D. Emmanuel* (p. i—iv, Lisbon, 1565—1567, folio); and *Chron. do Principe D. Joam II* (Lisbon, 1567, folio); and in his short Latin writings *De Moribus Æthiopum*, &c. (in P. Martyr's work *De Rebus Oceanicis*, Cologne, 1574, third edition), have described the Portuguese heroes. The History of King Emmanuel by the bishop Jeronymo Osorio, who died 1580 (Lisbon, 1571), is esteemed on account of the tolerant views of this prelate. Bernardo de Brito afterwards wrote his *Monarchia Lusitana* (1597 and 1609, folio); also his *Elogios dos Reis de Portugal* (Lisbon, 1603, 4to.). But as he began with the creation of the world, he had not proceeded to the actual foundation of the Portuguese state, when he died in 1617; his style is manly and simple. The voyages of discovery of the Portuguese missionaries and other Portuguese also furnished abundant materials to the Portuguese literature; for instance, the Travels of John Fernandez, from cape Arguin into the interior of Africa, in 1445; of Alf. de Paiva and Joau de Covilham, whom John III sent, towards the end of the fifteenth century, as ambassadors to the (so called) Prester John, king of Abyssinia, and to India; yet many of these narratives are still in manuscript.—Respecting the historical literature, see *Biblioth. Histor. de Portugal e seus Dominios Ultramarinos*, &c., with notes by Arco do Cejo (Lisbon, 1801). At that time the power of Portugal sunk under Spanish despotism, and with it the Portuguese literature (in the seventeenth century). A voluminous writer, Manoel de Faria e Souza (1590 to 1649), commented on Camoens, without taste and spirit, but with an abundance of erudition; he published *Fuente de Aganippe, e Rimas varias* (Madrid, 1644—46, 7 vols.), and *Europa Portugueza* (3 vols., folio, Lisbon, 1675), in the Castilian language, and was considered for a long time a good critic in Portugal. His historical work shows a faulty taste, and, whilst he is anxious to exhibit every where his knowledge, wit and eloquence, he abuses the talents which he actually possessed. Among his sonnets some are distinguished by feeling and grace. Among other poets is the inventor of a sort of elegiac compositions, called *saudades*, the famous lawyer Ant. Barbosa Bacellar (who died in 1663). The prose writer Jacinto Freire de Andrade is distinguished by his *Vida de D. Juão de Castro, Viso Rey da India* (Lisbon, 1671, second edition, folio), and by his comic poems. This biography, translated into several languages, is considered, by the Portuguese, a model of a pure and noble historical style. Violante do Ceo, a Dominican nun, published *Rimas* (1646) and *Soliloquios* (1668). She, as well as some others, such as Jeronymo Bahia, are too artificial. The sonnets of Franc. de Vasconcellos, who was born in Madeira, and the sacred songs of the Brazilian Andre Nunes de Silva, are in a simpler style. In the eighteenth century, the literature of Portugal seemed to sink entirely with the decay of the state. In order to give it some support, the government founded the academy of the Portuguese language in 1714, and the academy of history in the same year. But the Jesuits and the inquisition permitted no talent to develope itself freely. Under Pombal's powerful government (1750—1777), the national feeling rose once more. He established, indeed, a censorship; but this was intended chiefly for political writings; he himself was a great friend to scientific pursuits. Under Joseph I, the whole school system was reformed, and an institute for the education of young noblemen was established. The rupture with Rome, then existing, was wisely taken advantage of for this purpose. The traces of independent thinking yet to be met with are chiefly derived from that time, when, among others, the great theologian Ant. Pereira was very active. The renovation of the university of Coimbra also belongs to this period, and several good works then appeared. After the death of Joseph, the enemies of intelligence again raised their heads, yet without being able to destroy every thing. On the contrary, an academy of sciences was founded in 1779, by the influence of the duke of Braganza, which consists of three classes. One man, of great talents and accomplished taste, distinguished himself in the first half of the eighteenth century—general Franc. Xav. de Meneses, count of Ericeyra. He corresponded with Boileau, whose *Art Poëtique* he had translated into Portuguese verse, and published, among several other writings, an epic poem, the *Henriqueida*, or the Foundation of the Portuguese Monarchy, by Henry of Burgundy (Lisbon, 1741). It was intended to be more regular than the Lusiad, but Boileau's school was unable to inspire the count with the ardent and chivalric spirit of Camoens. Another poem of this period, by José Basilio da Gama, called *Ouraguay* (Lisbon, 1769), commemorating the conquest of Paraguay, is much esteemed. The inclination of the people of Lisbon now turned again to the theatre which had been so long neglected. We shall say a few words on the Portuguese theatre hereafter. Among the recent Portuguese poets, several have contributed to banish the ancient pastoral style, and to alter the taste of the people for poetry of an Oriental character, by good translations, particularly from the English; e. g. two Brazilians, Claude Manoel da Costa, and Antonio Diniz da Cruz e Silva, after whose death appeared his *Obras*, &c. (Lisbon, 1807), containing imitations of British poets, and *Odes Pindaricas posthumas de Elpino Nonacrience* (Coimbra, 1801); also Almeno, translator of the first four books of Ovid's Metamorphoses into Portuguese verse, author of *Poesias de Almeno, publicadas por Elpino Duriense* (Lisbon, 1805); Francisco Manoel, who was born in 1734, and after 1778, when he escaped from the inquisition, passed his life in Paris, where his lyrical poems appeared in 1808, and where he died in 1819; and several others. One of the most fertile and most popular poets was Manoel Maria de Barbosa du Bocage, who died in 1805, in the Lisbon hospital. Of his *Rimas*, the second edition appeared in Lisbon, 1800, in 3 vols. (the third, 1804, under the title *Poesias*, dedicated to the countess of Oyenhausen). This lady, a daughter of the marquis of Alorno, has translated Wieland's Oberon, but not yet published it. Among the poets yet living, José Monteiro da Rocha and Mozinho d'Albuquerque are esteemed. There are among the Portuguese several successful *improvvisatori*. The *Parnasso Lusitano* (published in Paris) facilitates an acquaintance with Portuguese poetry. Since 1827, a Portuguese periodical has been published in Paris, called *Novos Annaes das Sciencias e das Artes*, in which a fragment of a great Portuguese poem, yet in manuscript, is to be found—*Branca ou a Conquista do Algarve Blanca*. There can be no question respecting the state of Portuguese literature at this moment. In no arts have the Portuguese so distinguished themselves as in music, in dramatic performance and in dancing. In music they come near the Italians, in the theatrical dance to the French. King John, just before he left Portugal, established an academy of painting under the direction of the painter José da Cunha Taborda, but it came to an end when the French took possession of Lisbon. Before the reign of king Joseph, there existed no national Portuguese theatre, if we do not apply this name to the absurd productions called sacred pieces (*autos sacramentaos*) which were as barbarous as the dramas of other nations in the middle ages. Private persons undertook to establish a theatre under Joseph, and Pombal did much to support them. In 1771, a royal decree declared the profession of actors respectable, and many excellent actors soon distinguished themselves. But, after the death of Joseph, the queen thought herself in conscience bound to prohibit the appearance of women on the stage. Dramatic writing, of course, immediately relapsed. It had, indeed, consisted, in this period, of little more than translations from foreign works. King John permitted again the appearance of actresses. At present, there is hardly one actor at Lisbon who can be compared with a second rate actor in other large cities of Europe. Lisbon has at present five theatres—1. San Carlos, the largest. In 1822, government appropriated 15,000,000 reis for its support. 2. Rua dos Condes, for the support of which government contributed, in 1822, 10,000,000 reis. 3. and 4. Salitre and Bairo Alto, smaller theatres, where Portuguese and Spanish pieces are played alternately. 5. Boa-Hora, at Belem, where Portuguese farces only are played. A circus adjoining the theatre Salitre serves for bull-fights. The theatre of San-Joaõ, at Oporto, is the second in the kingdom. Women were allowed to appear on the stage here before they were allowed so to do in Lisbon. In 1822, this theatre received from government

10,000,000 reis. Setubal (St. Ubes) has a large theatre, but no permanent company. Madeira has a beautiful theatre at Funchal, and a society, calling themselves *socios do bom gosto*, support a theatre. The tragedy, so neglected in Portugal, is here much cultivated. Brazil possesses several theatres, of which some may be compared with San Carlos. The first Brazilian theatre, San-Joaõ, at Rio Janeiro, was opened October 11, 1813. There are several others at this place. Bahia has a brilliant theatre since 1810. Pernambuco has also one. The Italian opera has always been the chief theatrical attraction in Portugal. Joseph was enthusiastically fond of music, and Pombal nourished this inclination, in order to be left more at liberty in affairs of government. Joseph had several royal theatres for the opera. That in Lisbon cost more than any similar establishment in Europe. The first musicians and singers were attracted by large salaries. Among the performers who sang in the royal chapel, Egizieli and Caffarelli had salaries of 72,000 francs, though they performed but two or three months in the year, and, after a few years, received considerable pensions for life. The theatre on which the operas were performed, was situated on the Tagus, and when the curtain in the back ground was raised, the sea was seen in its splendor. After the banishment of actresses, the opera also suffered; but it revived, and Italian voices, like those of Crescentini, Naldi, Mombelli, Mad. Catalani (q. v.), Gaforini, &c., were heard. The ballet and scenery were equally attended to. But the invasion of the French, and the subsequent political events, caused the decline of the opera. At Oporto it flourished longer. The Jesuits formerly established a singing school for negroes near Rio Janeiro, on their estate, called Santa Cruz. When the order was abolished, this district fell to the crown, and Santa Cruz became one of the residences of the court, after the removal of the royal family to Brazil. When the court for the first time attended mass in the church of St. Ignatius de Loyola at St. Cruz, the king was astonished at the perfection with which the sacred music was executed by negroes of both sexes, who had formed themselves on the rules formerly introduced by the Jesuits. The king now ordered the establishment of elementary musical schools, and very skilful singers and musicians of both sexes were soon formed; the first performers on the violin, bassoon and clarionet were negroes, and, among vocal performers, two negresses were distinguished. In 1826, the whole orchestra of the chapel consisted of negroes. The ex-emperor Pedro, an enthusiastic admirer of music, who composes himself, had several operas composed by the brothers Marcos and Simaõ Portugal (more known under the name of *Portogallo*), and performed by negroes only, who played with universal applause.

Portumnus, among the Romans; the god of harbors; the same as the *Melicerta* (q. v.) or *Palæmon* of the Greeks. He had a small temple on the Tiber, and the *Portumnalia* were yearly celebrated in his honor. He bore a key in his hand as an emblem of his office.

Poseidon. (See *Neptune*.)

Posen, or **Posnania**, grand duchy, one of the ten provinces of the kingdom of Prussia, composed, by an act of the congress of Vienna (1815), of a part of South Prussia and of the district of Netz. It borders on the Prussian provinces of Silesia, Brandenburg and West Prussia, and on the kingdom of Poland. It has a superficial area of 11,500 square miles, with a population (in 1828) of 1,064,000, of which 50,000 are Jews, 150,000 Germans, and the rest Poles; there are about 253,000 Protestants. The province is divided into the two circles of Posen and Bromberg. The face of the country is, for the most part, level, and, in general, is fruitful, and under excellent cultivation. The principal rivers of the province are the Warta and the Netze, which flow into the Oder; the Vistula, with which the Netze is connected by a canal, also touches the northeast boundary. (See *Prussia*.) Posen was formerly a palatinate of Poland; it fell to Prussia by the partition of Poland, in the last century. (See *Poland*.) The capital, Posen (in Polish, *Poznan*), lies on the Warta, in lat. 52° 19′ N., and lon. 17° 22′ E.; population, 24,596, of whom 4000 are Jews.

Posidonius; a stoic philosopher (see *Stoics*), born at Apamea, in Syria, about B. C. 103, called, also, the *Rhodian*, because he was the scholar of Panætius of Rhodes, and was himself a teacher at Rhodes, after he returned from his travels. He taught the stoic philosophy with great applause, was at the same time a statesman and one of the Prytanes, and went, when fifty years of age, as an ambassador to Rome. The most distinguished Romans were his scholars, and Cicero himself was initiated by him into the stoic philosophy. He wrote many works, which are now lost. Jan. Bake collected the fragments—*Posidonii Reliquiæ, etc.* (Leyden, 1815). He distinguished the ideas of God, fate and nature more accurately than the other stoics.

Posilippo. (See *Pausilippo.*)

Position. (See *Prosody.*)

Posse Comitatus, in law; the power of the county or the citizens who are summoned to assist an officer in suppressing a riot or executing any legal process, which is forcibly opposed: the word *comitatus* is often omitted, and *posse* alone used in the same sense.

Posselt, Ernest Louis; a historical and political writer, born at Durlach, in Baden, in 1763, studied at Göttingen and Strasburg, and, in 1784, became professor of history and rhetoric, in the gymnasium at Carlsruhe. In 1791, he was made bailiff of Gernsbach, near Rastadt, and died in 1804, in consequence of a fall from a window. His principal works are *Bellum Populi Gallici adversus Hungariæ Borussiæque Reges*, &c. (1793); his *Histor. Taschenbuch für die neueste Geschichte*; and *Geschichte der Deutschen*, continued by Pölitz, &c. He also edited the European Annals (in German) from 1795, and the *Allgemeine Zeitung*, which he established in 1799.

Possessed (*demoniacs*). The epileptic, hysteric and frantic patients were so called in ancient times, and it was believed that one or several devils dwelt in such unfortunate persons. Delusion, in connexion with monkish knavery, produced miracles; stupidity and malignity, *autos da fé*.

Post-Captain. (See *Captain.*)

Postern, more frequently called a *sally port*, is a small gate generally made in the angle of the flank of a bastion, or in that of the curtain, or near the orillon, descending into the ditch, by which the garrison may march in and out unperceived by the enemy, to relieve the works, make sallies, &c.

Posts; one of the most effective instruments of civilization, to be ranked with the art of printing and the mariner's compass. We find the first posts in the Persian empire. Darius I, son of Hystaspes, caused couriers, with saddled horses, to stand ready at different stations throughout the empire, situated one day's journey from each other, in order to receive reports from the provinces without delay. Augustus established an institution in the Roman empire similar to the modern posts. The name of *posts* is said to be derived from the Latin *positus* (placed), because horses were *put* at certain distances, to transport letters or travellers. In the ninth century, there existed in Germany, France and Italy, messengers who travelled on horseback, destined, however, only for the service of government; and this establishment, besides, was of little duration. Carrier pigeons (q. v.) are used in the East, and became known in Europe through the crusaders, but seem never to have been introduced in the latter part of the world to any extent. When commerce began to flourish, the larger commercial cities, particularly in Germany, began to establish mounted messengers and stage-coaches. Travelling merchants and butchers (who ride about in the country to buy cattle) used to take charge of letters. In the beginning of the thirteenth century, the university of Paris maintained pedestrian messengers, who, at certain times, took charge of letters and money for the students, collected in that city from almost all parts of Europe. Louis XI established for his own use mounted messengers, and, by an edict of June 19, 1464, instituted post stations, at intervals of four French miles, on the chief roads of France. Charles VIII extended this institution, which existed until 1524, for the sole use of the court. When the Spaniards discovered Peru, in 1527, they found messengers placed at short distances on the road from Cusco to Quito, in order to transmit with speed the orders of the inca. In Germany, the first post was established in Tyrol, in the latter half of the fifteenth century, by Roger I, count of Thurn, Taxis and Valsassina. His son established another from Brussels to Vienna, in 1516, by the wish of the emperor Maximilian I. In 1522, a post was established between Vienna and Nuremberg, where the diet sat, on account of the war with Solyman II; but it ceased with the war. Charles V was anxious to have news as quickly as possible, on account of the vastness of his states, and caused Leonard of Thurn and Taxis to establish a permanent riding-post from the Netherlands through Liege, Treves, Spire and Rheinhausen, through Würtemberg, Augsburg and Tyrol to Italy. In 1543, Leonard was appointed postmaster-general of the empire. After the death of Charles V, the members of the empire were unwilling to allow a Spanish-Netherlandish post (such was that established by Charles V) in their territories; yet Ferdinand I confirmed Leonard in 1563. In 1595, he was appointed postmaster-general of the empire, in opposition to the wishes of the members; but several of them, having already established posts in their dominions, refused to acknowledge the exclusive privileges claimed by the imperial post. In 1615, Lamoral of Taxis was actually infeoffed with the imperial post, as an imperial fief. Ferdinand II extended this grant so as to make it descendible to the nieces of Lemoral, and a regular post now went every week from the imperial court, and also from Rome, Venice, Milan, Mantua, &c., to Augsburg, and thence to Brussels and back. The post remained as long as the empire existed, one of its many ill-defined and unwieldy institutions, in which private or petty interest was allowed to stand in the way of the public welfare. The post was actually made a regular point in the *Wahlcapitulationen*, the stipulations between the electors and the candidate for the imperial dignity. The imperial posts were restricted, and the emperor himself excluded the Thurn and Taxis post from several of his dominions. In a country where so many small territories had their own posts, it was natural that they should remain in a very bad condition, and it is only in very recent times that they have become better; yet, generally speaking, the letter-mail is not transmitted quickly. It was wise in the U. States to intrust the whole post establishment to the general government, thereby avoiding the difficulties which have interfered with the beneficial operation of the institution in Germany. There are at present post establishments of different kinds in Germany. Austria, Prussia, Bavaria, Hanover, the kingdom of Saxony, Baden, Brunswick, Mecklenburg-Schwerin, Holstein-Oldenburg, Holstein-Lauenburg and Luxemburg have exclusively their own posts; but, in Würtemberg, Hesse-Nassau, in the states of the Saxon-Ernestine line, in both the Schwartzenburgs, Hohenzollern, Waldeck, Lippe-Detmold, and the territories of the princes of Reuss, the post is left to the house of Thurn and Taxis as a fief. In some other states, the Thurn and Taxis post is founded upon a regular compact. The whole Thurn and Taxis post establishment is under the superintendence of the postmaster-general at Frankfort on the Maine. The petty principality of Lichtenstein has no post. The Thurn and Taxis post extends over an area of 25,000 miles, with 3,753,450 inhabitants. We will mention here a few items, either peculiar to Germany, or otherwise interesting. The stage-coaches, almost all over Germany, are united with the post-offices, and are called *Fahrende Posten* (driving posts). With the many disadvantages connected with this state of things, there is at least one advantage, that, by these posts, which travel, of course, slower than letter-mails, parcels, &c., may be sent as safely as letters. In several German states, letters can be "recommended," when they are specified on the way bill, for which higher postage is paid. If any person wishes to communicate something to all the post-offices of a certain line (for example, an inquiry after an important parcel), an open paper may be sent by mail, which is read and forwarded by all the respective postmasters. *Estafettes* (q. v.) may always be had. In some states, it is permitted to pay a sum, not beyond a certain amount, to any postmaster, and to send the receipt therefor to any other part of the state, where the postmaster who receives it is obliged to pay the sum. For the remittance of small sums this is very convenient, particularly for the poorer classes. A receipt for the delivery of any letter purporting to contain a particular sum, may always be had, and this sum is paid, if the letter is lost in the regular course of transportation. If the letter, however, should arrive in good order, and no money be found in it, the government would not be answerable in consequence of such a receipt. But if a man goes to the post-office with an open letter, and encloses a certain sum therein in the presence of the postmaster, the receipt of the government makes him liable, at all events, for the safe transportation of the money.—Something was said, in the beginning of this article, respecting the origin of the posts in France. During the reign of Louis XIII, 1610—30, the French system of posts received a more regular form from the establishment of a controller-general of posts. They, as well as the postmasters named in 1630, received the revenue, till at length the minister Louvois, in the reign of Louis XIV, 1676, farmed out the posts to a certain Patin, and committed to him the regulation of the postage. In 1688, when the post was farmed out for the third time, the revenue amounted to 1,400,000 francs (a franc is about 18¾ cents), and, in 1695, when it was sold by auction unconditionally, to 2,000,000 francs. In 1733, this revenue amounted to 3,000,000, principally because the regency, in 1719, had abolished the academical couriers (on which account the university at Paris had assigned to it, from the revenue of the post-office, 300,000 francs yearly, which was paid to it till the beginning of the revolution). In 1738, the post establishment was taken under royal management, in order that the government might find out the true income. The result of this was an increase of the sum at which it was farmed out. In 1786, when it was leased for the twenty-third time, the sum paid amounted to 10,800,000 francs. At the expiration of the last lease, in 1791, when the establishment reverted to the king, it produced a clear income of more than 11,000,000 francs. From 1814 to 1822, the average yearly returns of the letter posts were 21,890,000 francs: now, these returns amount to 26,560,000 francs, which is the postage of 60,000,000 letters. Besides these, there are letters and packets free of postage, so that the whole may be reckoned at 110,000,000, without including 25,000 sheets of Parisian periodicals, sent daily to the departments, and 25,000 others which are published and circulated in the departments. The revenue from the post-office of Paris is yearly 4,310,000 francs. 40,000 letters are sent daily from Paris into the interior and abroad, of which 28—30,000 pay postage, and from 10 to 12,000 are free; and 30,000 arrive daily, of which 18,000 pay postage: thus 25,550,000 letters yearly arrive at and are sent from Paris. From the time of Louis XV till the time of the revolution, general intendants were almost always placed at the head of the post-office department, principally chosen, as in Spain and Italy, from men of the highest rank, because their place was always near the king. For the superintendence of the letter-post and postmasters, a particular council was appointed, under the presidency of the head of the department, and consisting of three general inspectors. Since 1819, the letter and extra posts (*postes relais*), the last of which were left to the postmasters for their own advantage, have been united under the same department. A general director is chief of the whole post system, as in all the important branches belonging to the ministry of finance. In every one of the French departments is a post-inspector; every post-office has a director, a controller, and such number of assistants as circumstances may require. The postmasters stand, indeed, in respect to extra posts, under the general director, but have a particular council of direction, consisting of three general inspectors. The management of the post department is very simple, and the system of accounts worthy of imitation. The course of business is very much facilitated by the *Instruction générale sur le Service des Postes*, published in 1808, and still in force. Till the revolution, which took away all privileges, the postmasters enjoyed great immunities, with regard to landed property, the quartering of soldiers, the military duties of their sons, &c. They were under the ministry of the royal household, had their commissions signed by the king, and enjoyed considerable salaries. For these reasons, they were willing to transport the mail at first for the trifling price of three, afterwards of ten sous, per pound for a stage. The national assembly gave them for their lost privileges, under the name of *salary*, a small compensation of 2—400 francs. Afterwards, in October, 1823, the postmasters received thirty sous for the horse for the transportation of the mail and public expresses; likewise for the couriers twenty-five sous. All the mails in France are accompanied by responsible couriers (*service des malles*); they likewise transport money and individuals, each of whom pays two francs a stage for a place, and may carry fifteen pounds of luggage. The directors-general of the posts make contracts with the postmasters for the transportation of the mail and public expresses, but are not bound to keep them strictly, as it is only the extra posts to which the postmasters have an undisputed claim. Couriers are of two kinds, great and small. The first traverse the principal routes, as through Lyons to Italy, through Bourdeaux to Spain and Portugal, through Strasburg to Germany, &c. The route of the last is through the interior, and they are dependent upon private enterprise. The couriers of the great post have covered carriages, with three horses. Since the return of Louis XVIII to France, the carriages of the couriers upon the great routes have become much handsomer and more commodious. This was owing to the suggestions of the king, who had compared their tasteless structures with the light construction of the English. This gave rise, it is true, to complaints from the owners of the old carriages against the postmasters, which were even brought into the chamber of deputies, but finally settled by an agreement concluded September, 1822. Since 1791, the posts in France have been much more regular and expeditious. The postage has also, in the course of time, undergone important changes. Under Louis XIV, the farmers of the post regulated it at will; but as soon as the post system was taken under the royal management, an end was put to the system of extortion, as is apparent from the earliest postage rates, namely those of the years 1701 and 1703. The present rates were established by the decree of 1806. In proportion to the postage of 1759, there is a considerable increase in particular charges, amounting to a third in the case of single letters, but the excuse for this is found in the more than trebly increased expenditure. Yet the French postage upon a single letter is more reasonable than that of any other country; for the highest price of such a letter to any part of the kingdom amounts but to one franc (18¾ cents). The increase, however, in the price of letters with their increasing weight is not so reasonable; for the ratio in the French system is the highest of all, higher in proportion than the English, and "recommended" letters must even pay double. On the contrary, France offers an example worthy of imitation in the rates of conveyance for printed matter. Newspapers sent into the interior pay but four centimes a sheet; those sent out of the kingdom eight. Other printed matter pays five centimes in the first case, and ten in the second. These charges on printed matter must be paid upon delivery. Patterns of goods pay one third postage. Quite contrary to this is the Prussian post system of 1824, which prohibited the carrying of printed matter in the letter mails, and transferred it to the government baggage wagons. It imposes, moreover, a charge of triple letter postage on packages of two ounces weight, and of seven times letter postage on packages of two pounds weight. Postage upon money, since 1703, has been fixed at five per cent., without regard to distance. Since 1759, a small post has been established in the city of Paris, under royal regulation, to the great advantage of the Parisian public. From eight offices, in different parts of the city, the letters, as well of the great as the lesser post, are distributed by the letter-carriers, five times each day during the six cold months, and six times a day during the others. As to the inviolability of letters, it is known that every postmaster must take an oath to observe it; but letters are, in fact, often opened by the secret police. In 1825, the letters sent by commercial couriers from Paris to London were broken open. The answer returned to the complaints made was, that the right to send couriers was a simple permission, in consideration of which the government must have liberty to examine the contents of the letters. In the time of the French republic and consular government, the secrecy of letters was much more regarded. After the fall of the Villèle ministry (Jan. 1828), the government abolished the department intrusted with the unsealing of letters, and declared them inviolable. The coaches, or *diligences*, for the transportation of passengers and baggage, have always been private establishments, licensed, indeed, by the government, and paying a fixed tax to the state. Competition, therefore, has contributed much to their improvement. The most important undertaking of this kind is at Paris, *entreprise générale des messageries*. Besides *diligences*, there are *pataches*, a kind of travelling messengers, who receive travellers, and make short journeys, without changing horses, but likewise have licenses from government, and are obliged to pay a certain tax. In 1766, there went daily from Paris twenty-seven coaches, with 270 travellers, into the different provinces. Now there are 300 coaches, which carry more than 3000 passengers. Just before 1792, the last lease of the public coaches produced but 600,000 francs. Now the taxes on them alone amount to nearly 4,000,000 francs. In the above-mentioned year, fifty francs were paid for a seat in a carriage from Paris to Lyons, and the journey occupied ten days. Now the time does not exceed three days, and the price is seventy-two francs. The extra posts in France are particularly distinguished for their swiftness. This is owing, not to the goodness of the horses, but to the activity of the postmasters, the postilions and the drivers. The postilion never thinks of sleep or rest. As soon as he gets in sight of his stopping-place, he gives a signal by cracking his whip, at which every thing is immediately got in readiness, so that he starts again in a few minutes. In France, the official regulations for extra posts are printed yearly, together with all the routes, and what is to be paid and to be observed at each stage; also the post charts, and all new changes.—The beginning of the English post system is first observed in the statutes of Edward III; yet the supposition is not well founded that from that time the post was established as a public institution. Edward IV placed post-houses at intervals of twenty miles; and, in the north, a military post was established to communicate as quickly as possible with the army during the Scottish war. This institution was indeed authorized by the reigning king, but it was probably owing to the king's brother Richard, who commanded the army. At what time, and under what conditions, the public were able to avail themselves of it, we have no certain knowledge. That this post, nevertheless, was, for a long time, very limited, and but partially used, is obvious from the fact that, not long before the reign of Charles I, merchants, tradesmen, and professional men, in the whole kingdom, resorted to less secure means of conveyance, or employed express messengers, at great expense, to carry their correspondence. The universities and principal cities had their own posts,—messengers who performed long journeys, riding or walking, and returned with the answers to the letters. In this manner the post was conducted, in Scotland, till a much later period. In 1543, a post existed by which letters were carried from London to Edinburgh within four days; but this rate of transportation, extraordinarily rapid for that period, lasted but a short time. After Camden, who was much employed by Elizabeth in her Scottish affairs, Thomas Randolph (in 1581) held the place of postmaster-general of England. James I set on foot, under the superintendence of Matthew de Quester, a system for forwarding letters intended for foreign lands. Hitherto, this had been done by private persons. The foreign merchants settled in London preserved long after the privileges belonging to the place of postmaster for foreign letters. In 1632, Charles I, by a proclamation, forbade letters to be sent out of the kingdom except through the post-office. In 1635, he established a system of posts for England and Scotland, which was conducted according to new and judicious regulations. All private and local posts were abolished, and the income of the post-offices was claimed by the king. This institution was under the direction of Thomas Witherings, who was removed in 1640, on account of notorious abuses. To him succeeded Philip Burlamachy, who was under the immediate control of the secretary of state. In 1630, Charles, in connexion with Louis XIII of France, established a post between London and Paris, from Dover to Calais, and from thence through Boulogne, Abbeville and Amiens to Paris. At the same time, the private post, which had existed between the countries, from Rye to Dieppe, was abolished.

These arrangements suffered, during the civil wars, many important interruptions, or were almost entirely annihilated. Yet no sooner was public tranquillity restored, than a commission was appointed, and a post system arranged, under the direction of the attorney-general, Edmund Prideaux, which became so profitable, that the posts could now be leased for £10,000, while before, the support of them had cost £7000. The lessee still made so large profits that the common council of London looked upon him with jealous eyes. On the restoration, the system was retained with slight modifications. During the government of William III, acts of parliament were passed, which regulated the internal post system of Scotland, and, by the ninth act of queen Anne, the post system of England was arranged as it is at present. The general post-office of Great Britain has jurisdiction of all which concerns the English and Scotch posts, and those going to the English colonies, excepting the East Indies, and the settlements in the South sea. Ireland has a separate post department. In all the cities, and in most of the large villages, postmasters and deputy postmasters are appointed. Their duty is to receive and despatch the mail, forward the letters to their place of destination, receive the postage, and send it at certain periods to the chief post-office. In order to ensure the observance of the different regulations which are connected with this department, and the fulfilment of the contracts for the transmission of the mail by carriages, on horseback, or on foot, seven inspectors travel on horseback through England and two through Scotland. Each of these has his particular district, in which he must watch over the regulation of the post. They correspond with the heads of the department in London. In England the number of postmasters amounts to 600, who are immediately connected with the chief post-office. In Scotland it is above 200. The regularity with which the post comes and goes, and the letters are received and distributed in England, is remarkable. The English have in this particular acquired a promptness worthy of being imitated, and which greatly contributes to the certainty and celerity of their commercial intercourse.—No where is the inviolability of letters more respected than in England and the U. States. Without an accurate acquaintance with the details of the British post system, it is not possible to obtain a conception of its present perfection. Mr. Palmer's invention of mail-coaches has been found highly convenient and useful, not only for the safe and expeditious conveyance of letters, but also of passengers. Much praise is due also to the auxiliary institutions of the foot and horse posts, which complete the complicated machine. Postmasters are also established in British North America and the West Indian colonies, which regularly receive, once or twice a month, packet boats from Falmouth. Even in the seaports of the continent, of the Mediterranean sea, and South America, agents are appointed which receive English packet boats. In London there is the general and the two-penny post: in the first are the principal offices; that of the chief secretaries, receiver-general, accountant-general, &c. Besides these chief offices, there are in the city more than sixty houses where letters for the general post can be delivered. The number of the officers in the institution is 175, messengers and porters 35, letter-carriers 203, guides 270. The mail-coaches travel daily about 13,000 English miles, and the contractors receive about one penny and a half per mile. Twenty-two mail coaches go from London, and forty-five are employed upon the other routes. The first mail coach started for Bristol, August 2, 1784, and in 1786 they were in general use. In the district of the two-penny post, which includes in its circuit, London and the country within a distance of ten miles, there are 140 houses, where letters are received; the number of officers amounts to 48; that of the letter carriers to 359. The revenue from the post offices throughout the kingdom of England, of late years, since the restrictions on intercourse with the continent have been removed, has averaged 1—1½ million pounds sterling. Thus, for example, in 1828, the net income was 1,508,000, and, in 1830, 1,466,012 pounds sterling. The expenditure in 1828 was 702,418 pounds sterling. In 1801, the income was only 858,000 pounds sterling, although England possessed, even at that time, the commerce of the world. We perceive, from this comparison, how much the English trade has increased since 1815, for this trade is the great support of the post system. The postage in England is higher than in any other of the European kingdoms; but it is to be considered that the worth of money is less, and the wealth greater, than in other states. The postage may therefore be considered moderate to the inhabitants of England. From the public conveyances the government receives over 700,000 dollars, and still travelling is hardly any where so convenient, expeditious, and cheap, as in England. From Dover to London, seventy-one miles, the traveller is conveyed conveniently in eleven hours. From Edinburgh to London, 396 miles, the journey is made in coaches, fifteen of which traverse this route every week, in sixty hours. The coaches employed in 1768 took 16—18 days. The rates of postage in England are, for any

Distance not exceeding		15 miles,		4 d.
above 15, and not exceeding		20	"	5 "
" 20	"	30	"	6 "
" 30	"	50	"	7 "
" 50	"	80	"	8 "
" 80	"	120	"	9 "
" 120	"	170	"	10 "
" 170	"	230	"	11 "
" 230	"	300	"	12 "
" 300	"	400	"	13 "
" 400, for every 100, or part of it,				1 "

The post establishments of the other European states are either still in a very low condition, or are formed more or less upon the models of those already mentioned. The post establishments of Russia have been much improved in later times, compared with her other political institutions. They appear to have been formed on the model of the principal post establishments in North Germany. The postage is moderate, and has been gradually rather lessened than increased. By the late rates, a letter of an ounce weight pays two copecks for each hundred versts.* This is the rule up to 1500 versts. For any distance between 1500 and 3000 versts, only one copeck additional is paid. For any distance over 3000 versts, not more than fifty copecks are paid. Letters are sent in that immense empire 6000—7000 versts. For the sending of powers of attorney, exchange, and money documents, the postage is double that of an ordinary letter. For money and packets of value, which are transported badly, and generally upon baggage wagons, the insurance is, for a distance of 500 versts, half per cent., over 500, one per cent. For letters sent abroad the Russian postage is also very moderate. Although Russia is twice as large as all Europe, and numbers more than fifty million inhabitants, yet the revenue of the postage cannot be reckoned at more than between 5—600,000 dollars. There are five post routes: those of Moscow, Riga, Viborg, Archangel, and Poland. Post carriages, or *diligences*, are not to be found in Russia. The extra posts, however, are no where cheaper and more expeditious. An extra post-horse costs, for a verst, not more than two copecks. A journey of 4580 versts, for which eight weeks are employed, costs, including the expense of living, only about 220 dollars. He who wishes to make use of the extra post, must be authorized by a particular pass or order. Any one travelling with an extra post in any part of the country, will find a great convenience in wearing a uniform. In Denmark, the post is managed very much with a view to revenue, but is distinguished by no particular arrangement. The postage in Sweden and Norway is more moderate, and hence the income is much less than in the neighboring state. In the Netherlands, posts were established by the ancestors of the princely Taxis house, and Leonard von Taxis held, even in 1543, the station of postmaster-general of the Netherlands. After the revolt of the Netherlands from the house of Austria, the post system of England appears to have been taken as a model. The French post system was introduced into Holland immediately after its incorporation with the French empire. So it still continues, and with very little alteration, since the change of Holland into the kingdom of the Netherlands. Italy appears to have been the cradle of the system of posts. Even under the emperor Augustus, it was in the most flourishing condition that it had enjoyed in ancient times. It was then constituted principally with a view to obtain intelligence from the army. Messengers and couriers were employed, the last of extraordinary swiftness. Thus, for example, the emperor Augustus several times received despatches from Sclavonia in four days; and Tiberius was so much accustomed to this expedition, that he indignantly threw away his despatches if they were more than twenty days from Asia, fifteen from Europe, ten from Africa, five from Sclavonia, and three from any part of Italy. Under him, and also under the succeeding emperors, extra posts were used. The head of the post department was the commander of the pretorian guards. From a manuscript in the library of the king of France, it appears that the German emperor Charles V paid the postmasters in Italy. Simon von Taxis was general post director at Milan, and resided in the imperial palace, where every thing was kept in readiness for the post service. In Milan and the neighboring places a foot post was established, which seems to have been the occasion and the model of the small post now established in Paris. Until the union of the kingdom of Italy with the old French empire, the Italian post establishments were well ordered; but they attained, from time to time, a higher degree of perfection, by being formed on the French plan. Since 1815, the post system in the Lombardo-Venetian kingdom, in Tuscany, Parma, and Modena, has been instituted more according to the Austrian model, still retaining, however, the French basis. In the other states of Italy, the posta, with some modifications, continued as before. The letter and extra posts are well organized in Italy. The privacy of letters was even so much respected, that, by the criminal code of Milan, the breaking of a seal was punished with death. In Switzerland, each canton has, according to the ordinances of the diet of 1803, the regulation of the post; consequently, it has its own post establishment. They are variously managed, and of various merit. A general system might make the postage cheaper, but it cannot, even at present, be called dear, as it has never been made an object of financial speculation. The absence of a general system for all the cantons has been, in some degree, compensated by agreements which have introduced some uniformity in the management of the post systems. There are no extra posts any where in Switzerland, and as all the regulations which have hitherto been made on this subject, have remained ineffectual, it has been supposed that the interest of inn-keepers and keepers of carriages for hire, has prevented their success. In Spain and Portugal, the post establishments are still in a very low condition, although a *correo mayor* presides over them as director-general. Only in European Turkey are they entirely in their infancy. For centuries, no change has been made, excepting that the grand signior maintains mounted Tartars for the public service, who must forward with celerity his despatches, and those of all the public authorities. In earlier times, there were public messengers who travelled on foot, but had the privilege of commanding those on horseback, whom they met, to dismount, in the name of the grand signior, and to use their horses to the place of destination, or to exchange them if they met others farther on, with less tired horses.

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* The amount of two copecks, or of the double copeck, in weight of copper, is a little more than a cent. A verst is about two thirds of an English mile.

In the English colonies in North America, a post-office was projected as early as 1692. A patent was laid before the Virginia assembly for making Mr. Neal postmaster-general of Virginia and other parts of America. The assembly passed an act in its favor, but it had no effect. It was impossible to carry it into execution on account of the dispersed situation of the inhabitants. The first office in the colonies was established in 1710, by an act of parliament, "for establishing a general post-office for all her majesty's dominions." The postmaster-general was to be "at liberty to keep one chief letter-office in New

York, and other chief offices at some convenient place or places in each of her majesty's provinces or colonies in America." After the breaking out of the revolution, this department came of course under the control of the congress of the confederacy. The constitution of the U. States, adopted in 1789, gave the exclusive power of establishing post-offices and post-roads to congress, thus preventing the difficulties which would have resulted from leaving this department to the several states. There is at the seat of government of the U. States a general post-office, under the direction of the postmaster-general, who is appointed by the president, and appoints two assistants, and such clerks as may be necessary for the performance of the business of his office. He establishes post-offices, and appoints postmasters at all such places as appear to him expedient on post-roads established by law. He instructs the postmasters, provides for the carriage of the mail, and directs the routes. "No stage, or other vehicle which regularly performs trips on a post-road, or a road parallel to it, shall convey letters, nor any packet-boat, or other vessel which regularly plies on a water declared to be a post-road, except it relates to some part of the cargo, under the penalty of fifty dollars;" but it is lawful for any one to send letters by special messenger. Robbery of the mail is punishable with imprisonment from five to ten years, and a second offence with death. If the carrier is wounded by the robbers, or his life endangered by the use of deadly weapons on their part, the first offence is punished with death. An unsucessful attempt to rob by assaulting the carrier, or threatening him with dangerous weapons, is punished with imprisonment from two to ten years. The punishment is the same for stealing the mail, or stealing any letter or packet from it, or from a post-office. In regard to dead letters, the laws provide that "the postmasters, every three months, shall publish a list of the letters remaining in their offices for three successive weeks, in one of the newspapers published at or nearest their places of residence, or shall have such lists posted at public places in their vicinty, and, at the expiration of the next three months, shall send such of the said letters as then remain on hand to the general post-office, where the same shall be opened and inspected, and if any valuable papers or matters of consequence shall be found therein, it shall be the duty of the postmaster-general to return such letter to the writer thereof, or to cause a description thereof to be inserted in one of the newspapers published at the place most convenient to the supposed residence of the owner, if within the U. States; and such letter and the contents thereof shall be preserved to be delivered to the person to whom the same shall be addressed, upon payment of the postage and the expense of publication. If the letter contains money, the postmaster may appropriate it to the use of the department, keeping an account thereof, and the amount shall be paid to the rightful claimant as soon as he shall be found." "It shall be lawful for the postmaster-general to make provision, where it may be necessary, for the receip of all letters and packets intended to be conveyed by any ship or vessel beyond sea, or from any port in the U. States to another port therein, and the letters so received shall be formed into a mail, sealed up, and directed to the postmaster of the port to which such vessel shall be bound, and for every letter or packet so received, there shall be paid, at the time of its reception, a postage of one cent, which shall be for the use of the postmasters respectively receiving the same.* And the postmaster-general may make arrangements with the postmasters in any foreign country for the reciprocal receipt and delivery of letters and packets through the post-office." Postmasters, post-riders and drivers of the mail-stages are exempt from militia duties, and from serving on juries. —*Privilege of Franking.* Letters and packets to and from the following officers of the government are by law received and conveyed by post free of postage: the president and vice-president of the U. States, secretaries of state, treasury, war and navy, attorney-general, postmaster-general and assistant postmaster-general, comptrollers, auditors, register, and solicitor of the treasury, treasurer, commissioner of the general land-office, commissioners of the navy board, commissary-general, inspectors-general, quartermaster-general, paymaster-general, superintendent of the patent office, speaker and clerk of the house of representatives, president and secretary of the senate, and any individual who shall have been, or may hereafter be, president of the U. States; and each may receive newspapers by post free of postage. Each member of the senate, and each member and delegate of the house of representatives, may send and receive, free of postage, newspapers, letters, and packets weighing not more than two ounces (in case of excess of weight, excess alone to be paid for), and all documents printed by order of either house, during and sixty days before and after each session of congress. Postmasters may send and receive, free of postage, letters and packets not exceeding half an ounce in weight; and they may receive one daily newspaper each, or what is equivalent thereto. Printers of newspapers may send one paper to each and every other printer of newspapers within the U. States free of postage, under such regulations as the postmaster-general may provide. "If any person shall frank any letter or letters other than those written by himself, or by his order, on the business of his office, he shall, on conviction thereof, pay a fine of ten dollars." —*Rates of Postage.* On a single letter, composed of one piece of paper, for any

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* Persons sending letters abroad are not always aware of the necessity of paying the postage to the port in the U. States where the letters are shipped. The additional cent is paid only when they are shipped where delivered.

Distance not exceeding		30 miles,	6 c.
above 30 and not exceeding		80 "	10 "
" 80	"	150 "	12½ "
" 150	"	400 "	18¾ "
" 400		"	25 "

A letter composed of two pieces of paper is charged with double these rates; of three pieces, with triple; and of four pieces, with quadruple. "One or more pieces of paper, mailed as a letter, and weighing one ounce, shall be charged with quadruple postage, and at the same rate, should the weight be greater." For every letter lodged at the post-office to be delivered at the place where it is so lodged, one cent is charged. *Newspaper Postage.* For each newspaper, not carried out of the state in which it is published, or if carried out of the state, but not carried over 100 miles, one cent; over 100 miles, and out of the state in which it is published, one and a half cent. For magazines and pamphlets, if published periodically, distance not exceeding 100 miles, one and a half cent per sheet; distance over 100 miles, two and a half cents per sheet; if not published periodically, distance not exceeding 100 miles, four cents per sheet; distance over 100 miles, six cents per sheet. "Each printed pamphlet or magazine which contains more than twenty-four pages, on a royal sheet, or any sheet of less dimensions, shall be charged by the sheet; and small pamphlets, printed on a half or quarter sheet, of royal or less size, shall be charged with half the amount of postage charged on a full sheet." The postage on ship-letters, if delivered at the office where the vessel arrives, is six cents; if conveyed by post, two cents in addition to the ordinary postage.—The following table will show the rapid extension of the post-office department in the U. States:—

Number of Post-Offices, Amount of Postage paid to Postmasters, incidental Expenses, Transportation of the Mail, net Revenue, and Extent of Miles, from 1789 *to* 1831.

Years.	Number of Post-Offices.	Amount of Postage.	Amount paid to Postmasters.	Incidental Expenses.	Transportation of the Mail.	Net Revenue.	Extent in Miles of Post-Roads.
1789	75						
1790	75	$ 37,935	$ 8,198	$ 1,861	$ 22,081	$ 5,795	1,875
1795	453	160,620	30,272	12,262	75,359	42,727	13,207
1800	903	280,804	69,243	16,107	128,644	66,810	20,817
1805	1558	421,373	111,552	26,180	239,635	44,006	31,076
1810	2300	551,684	149,438	18,565	327,966	55,715	36,406
1815	3000	1,043,065	241,901	18,441	487,779	294,944	43,748
1816	3260	961,782	265,944	16,508	521,970	157,360	48,673
1817	3459	1,002,973	303,916	23,410	589,189	86,458	52,089
1818	3618	1,130,235	346,429	24,792	664,611	94,403	59,473
1819	4000	1,204,737	375,828	24,152	717,881	86,876	67,586
1820	4500	1,111,927	352,295	26,206	782,425	——	72,492
1821	4650	1,059,087	337,599	31,003	815,681	——	78,808
1822	4799	1,117,490	355,299	23,655	788,618	——	82,763
1823	5043	1,130,115	360,462	29,069	767,464	——	84,860
1824	5182	1,197,758	383,804	35,276	768,939	9,739	84,860
1825	5677	1,306,525	411,183	32,214	785,646	77,482	94,052
1826	6150	1,447,703	447,727	33,885	885,100	80,991	94,052
1827	7003	1,524,633	486,411	40,203	942,345	55,574	105,336
1828	7530	1,659,915	548,049	55,583	1,086,313	——	——
1829	8004	1,707,418	559,237	69,249	1,153,646	——	115,000
1830	*See the following remarks.*	1,850,583	595,234	63,463	1,274,009	——	*See the following remarks.*
1831		1,997,811	635,028	48,304	1,252,226	91,582	

The reports of the postmaster-general for 1830 and 1831 do not give the number of post-offices, nor the extent in miles of post-roads; but they give the number of miles performed by the mail annually; and it appears that, in the year ending July 1, 1831, this was 15,468,692, of which 10,728,348 miles were traversed in stages and steam-boats, and 4,740,344 miles on horseback and in cabriolets. This amount was 968,702 miles more than in the previous twelve months. For more particulars, we must refer the reader to the reports of the postmaster-general, presented to congress annually, in connexion with the reports of the members of the cabinet and the message of the president of the U. States. These papers, laying open the operations of the administration without any reserve, are quite characteristic of the government of the U. States. The Post-office Laws, Instructions and Forms, Washington, 1828, contain the regulations respecting the post establishment. The U. States' mails carry letters, newspapers, pamphlets, and are transported on horseback, in coaches and steam-boats. No package weighing above three pounds can be sent by mail. The inviolability of letters is no where more respected than in the U. States, no law existing which can empower any officer, or private person, to open letters for whatever purpose (except in the case of dead letters above-mentioned); and, on the other hand, high penalties are imposed for opening or stealing them. The U. States are probably the only country in which posts exist without laws prohibiting private persons to carry letters, and the quantity of letters forwarded by private conveyance between certain places is very great. Only regularly established conveyances, as common stages, wagons, &c., are not allowed to take sealed letters. Great numbers of letters pass between America and Europe in the lines of packets, particularly those which run between New York and Liverpool and Havre, and are supported by the enterprise of private individuals in the U. States. The number of letters delivered by these packets into the New York post-office, sometimes amounts (when several arrive together in consequence of a continuance of contrary winds on the coast) to many thousands in one day. Other places, as Philadelphia, have also lines of packets to Europe.

Postulate (from *postulo*, to demand); in mathematics, a problem which it is self-evident can be solved; as, for example, to draw a line about a point, so that every part of the line shall be at an equal distance from the point. In the critical philosophy, postulates of practical reason are theoretical axioms, not susceptible of demonstration, to the reception of which we are determined by practical ideas, or certain practical laws existing unconditionally, and *a priori*. Man is free; man is immortal; there is one God; are, in the Kantian philosophy, the three postulates of pure practical reason.

Potash, or **Potassa**, derives its name from *ashes*, and the pots (called *potash kettles*) in which the lixivium from which it is obtained is boiled down. Some of its old names were, *vegetable alkali*, in allusion to its being derived from the incineration of vegetables; *salt of tartar*, from the fact that cream of tartar is another source of potash, and *alkali of nitre*, from its having been known to form the basis of that salt. The process employed in the arts for obtaining potash is the following: The ley of vegetable ashes is mixed with quick lime and boiled down in iron pots, and the residuum ignited; the substance remaining after ignition is common potash. The purest potash is obtained from the mutual action in a red-hot iron pot, of nitre and tartar, in the ratio of one of the former to two of the latter; the basis of each of these salts is potash, and the acids combined with them are destroyed by their action on each other. Those ashes which are derived from plants growing remote from salt water yield this alkali in greatest purity. Herbaceous vegetables yield more than trees; in trees, the branches yield more than the body, the small branches more than the large, and the leaves most of all. One thousand pounds of the following vegetables yielded saline matter in the following order:

Wormwood, ...	748
Stalks of sun-flower, ...	349
Stalks of Turkey wheat, ...	198
Vine branches, ...	162
Fern, ...	116
Box, ...	78
Fumitory, ...	360
Beech, ...	219
Elm, ...	166
Fir, ...	132
Oak, ...	111
Heath, ...	115
Aspen, ...	61

The alkali arises from various salts existing in the vegetable juices, and which have been decomposed by the action of fire. To prepare the potash, in a state of perfect purity, from the impure article bearing this name in commerce, we boil the common potash with twice its weight of quick-lime for a few hours, in abundance of water,—separate the precipitate, and boil the liquid down to the consistence of a sirup; after which we add an equal bulk of strong alcohol, and let the mixture stand some time in a closed vessel. Some solid matter will collect at the bottom of the vessel, above which will appear a stratum of watery liquor containing several salts in solution; while the alcohol occupies the top, and is colored of a dark-red color. This last is separated from the fluid below by decantation, and is evaporated to dryness in a silver basin. The dry substance is a hydrate of potash. It is solid, white, and extremely caustic. In minute quantities, it changes the purple of violets and cabbage to a green, reddened litmus to purple, and yellow turmeric to a reddish-brown. It rapidly attracts humidity from the air, and becomes semifluid. It is fusible at a heat of 300°, and is volatilized at low ignition. It is used in surgery, under the name of *lapis infernalis*, or *lapis causticus*. In chemistry, it is very extensively employed, both in manufactures and as an agent in analysis. It is the basis of the common soft soaps, for which purpose, however, it is not used in its pure state.—*Decomposition of potash.* If a thin piece of solid hydrate of potash be placed between two discs of platina, connected with the extremities of a voltaic apparatus of 200 double plates, four inches square, it will soon undergo fusion; oxygen will separate at the positive surface, and small metallic globules will appear at the negative surface, which are the basis of potash, and are called by sir H. Davy, who discovered the fact in 1807, *potassium*. Other and more convenient methods have been devised for obtaining this extraordinary substance. That invented by MM. Gay-Lussac and Thénard consisted in heating potash to whiteness in a gun-barrel, in contact with turnings of iron, the air being excluded; the potassium is liberated and collected in the cold extremity of the tube. M. Bronner, by acting on calcined tartar in a bottle of wrought iron, has succeeded in obtaining potassium at a comparatively low heat. The bottle is spheroidal, about half an inch in thickness, and capable of holding about a pint of water: a bent gun-barrel, ten or twelve inches in length, screws into the mouth of the bottle. The bottle, well luted over with fire clay, is set in a strong air-furnace, so that the tube may dip down externally, beneath the surface of the naphtha contained in a cylindric copper vessel, standing in a tub containing snow or ice and water. The top of the naphtha vessel has a cover fixed on it, pierced with a hole to receive the end of the gun-barrel; and from the side of the upper part of the vessel, a small tube goes off at right angles, to let the air and vapors escape. It is advantageous to mix a little ground charcoal with the tartar, previously calcined in a covered vessel, in the same iron bottle, for example. Nearly 300 grains of potassium have been procured by this apparatus from 24 ounces of crude tartar. Potassium is possessed of the following properties: It is lighter than water, its specific gravity being only 0.86. At common temperatures, it is solid, soft, and easily moulded by the fingers. At 150° it fuses; and in a heat a little below redness, it rises in vapor. It is opaque. When freshly cut, its color is a bright silver-white; but it suffers a tarnish on a moment's exposure to the air. To preserve it unchanged, it must be kept in small vials under naphtha, or oil of copaiba. It conducts electricity, like the common metals. When thrown upon water, it acts with great violence, and swims rapidly upon the surface, burning with a beautiful light of a red color, mixed with violet. The water becomes a solution of potash. When moderately heated in the air, it inflames, burns with a red light, and throws off alkaline fumes. Placed in chlorine, it burns with great brilliancy. On all fluids containing much water, oxygen, or chlorine, it readily acts. It combines with oxygen in two proportions. The *protoxide* is the pure potash above described, and consists of potassium 40 and oxygen 8. When potassium burns in open air, or in oxygen gas, it is converted into an orange-colored substance, which is the *peroxide* of potassium. It may also be formed by conducting oxygen gas over potash at a red heat. It consists of potassium 40 and oxygen 24. The attraction of chlorine for potassium is much stronger than that of oxygen for this metal. *Chloride* of potassium has a saline and bitter taste. It is composed of 36 parts of chlorine and 40 of potassium. The *iodide* of potassium is formed with the emission of light, when potassium is heated in contact with iodine. It fuses readily when heated, and is volatilized at a temperature below redness. It dissolves in strong alcohol; and the solution, when gently evaporated, yields small colorless cubic crystals of iodide of potassium. It is composed of 124 iodine and 40 potassium. *Hydrogen* and potassium unite in two proportions, forming in one case a solid, and in the other a gaseous compound. The latter is produced, when hydrate of potash is decomposed by iron at a white heat; and it appears also when potassium is burned on the surface of water. It is called *potassureted hydrogen.* It inflames spontaneously in air or oxygen gas; but on standing for some hours over mercury, the greater part, if not the whole, of the potassium is deposited. The solid compound of these bodies, called *hydroguret* of potassium, is formed by heating potassium in hydrogen gas. It is a gray, solid substance, which is readily decomposed by heat, or contact with water, but does not inflame spontaneously in oxygen gas. By the aid of a little heat, sulphur unites readily with potassium, and forms a *sulphuret* of this metal; and so much caloric is evolved at the moment of combination, that the mass becomes incandescent. It has a red color, fuses before the temperature of ignition, and assumes a crystalline texture in cooling. It consists of sulphur 16 and potassium 40. *Phosphuret* of potassium may be formed in like manner by the action of potassium on phosphorus, with the aid of a moderate heat. Charcoal which has been strongly heated in contact with potassium effervesces in water, rendering it alkaline, though the charcoal may be previously exposed to a temperature at which potassium is volatilized. Hence there is probably a compound of the two formed by a feeble attraction.—We now return to the subject of *potash,* or the protoxide of potassium, whose importance in a state of purity and in the compounds it forms with the acids, is so great to mankind. Potash is acted on by phosphorus. When it is heated in a close tube with phosphorus, a compound is formed, which, when thrown into water, decomposes it, phosphoric acid remaining in solution, and phosphureted hydrogen being liberated. The nature of this compound is yet uncertain; it may either be a phosphuret of potash, or a mixture of phosphate of potash and phosphuret of potassium. *Sulphuret* of potash, it used to be imagined, was formed when equal parts of sulphur and dry concrete potash are heated in a covered crucible, or when one part of sulphur and two parts of sub-carbonate of potash are heated together. But the usual product of these methods is sulphuret of potassium. It is said, however, that if the heat be kept moderate, a proper sulphuret of potash is formed. It is inodorous while dry; but when moistened, or dissolved, acquires a fetid smell, from the production of sulphureted hydrogen. From suffering decomposition when in a state of solution, it is scarcely possible to discover precisely its peculiar agencies. *Hydrosulphuret* of potash is formed by transmitting sulphureted hydrogen through a solution of potash. It is obtained in large prismatic crystals, white and transparent; its taste is alkaline and bitter. It attracts humidity from the air, and is soluble both in water and alcohol. *Carbonate,* or *sub-carbonate* of potash. This is the *pearlashes* of commerce. It is obtained from heating the crude potash in a reverberatory furnace, and stirring it briskly for some time at a white heat. From the predominance of the alkali in it, it is deliquescent; if exposed to the air, it soon attracts its weight of water, which is the quantity necessary for its complete solution. Its taste is acrid; it changes the vegetable colors to green, and combines with oils. These characters are so distinctly alkaline, that they formerly led to the opinion, that the potash was in excess in the salt, and hence it was termed a sub-carbonate; they are, however, to be ascribed rather to the weak acidity of the carbonic acid than to deficiency in its proportion; for it is proved that the salt consists of carbonic acid 22 and potash 48; hence it is strictly a carbonate of potash. It is decomposed by the acids; its carbonic acid being disengaged with effervescence. The *bi-carbonate* of potash may be obtained by exposing the solution of the carbonate to the air for some time, carbonic acid being imbibed from the atmosphere, and crystals being deposited; or it is formed more directly by passing a current of carbonic acid gas through a solution of the carbonate of such a strength that crystals form spontaneously. They are much more soluble in hot water,—the water taking up five sixths of its weight; but, if the temperature be that of boiling water, part of the carbonic acid assumes the elastic state, and rises through the liquor. The taste of this salt is more mild than that of the pearlashes; though still alkaline, it has no causticity, but it changes the vegetable colors to a green. It contains just double the quantity of carbonic acid in the carbonate of potash. It is much used for medicinal purposes. *Nitrate of potash, nitre,* or *saltpetre,* is a white, translucent or transparent salt, usually crystallized in distinct six-sided prisms, with dihedral summits. Its taste is penetrating; but the cold produced by placing the salt to dissolve in the mouth, is such as at first to predominate over the acid. Seven parts of water dissolve two of nitre, at the temperature of 60°; but boiling water dissolves its own weight. Its constituents are nearly equal weights of nitric acid and potash. On being exposed to a gentle heat, it fuses; and in this state being poured into moulds, so as to form little round cakes, or balls, it is called *sal prunella*, or *crystal mineral*. Nitre powerfully promotes the combustion of inflammable substances. Two or three parts, mixed with one of charcoal, and set on fire, burn rapidly; nitrogen and carbonic acid gas are given out; and a small portion of the latter is retained by the alkaline residuum, which was formerly called *clyssus of nitre*. Three parts of nitre, two of subcarbonate of potash, and one of sulphur, mixed together, form the *pulvis fulminans*, a small quantity of which, laid on a fire-shovel, and held over the fire till it begins to melt, explodes, with a loud, sharp noise. Mixed with sulphur and charcoal, it forms *gunpowder*. (q. v.) Three parts of nitre, one of sulphur, and one of fine saw-dust, well mixed, constitute the *powder of fusion*. If a bit of base copper be folded up, and covered with this powder, in a walnut shell, and the powder be set on fire with a taper, it will detonate rapidly, and fuse the metal into a globule of sulphuret, without burning the shell. The sources of nitre are as follows:—It is found ready formed in the East Indies, in Spain, in the kingdom of Naples; and it abounds in the limestone caves of the western and south-western states of our country, in which last-mentioned situations it is rarely found ready formed, but is obtained from the nitrate of lime, which is changed to nitre by being mingled with wood-ashes, and leached. Far the greater part of the nitrate made use of is produced by a combination of circumstances, which tend to compose and condense nitric acid. This acid appears to be produced in all situations where animal matters are completely decomposed with access of air, and of proper substances with which it can readily combine. Ground frequently trodden by cattle, and impregnated with their excrement, or the walls of inhabited places, where putrid animal vapors abound, such as slaughter-houses, drains, or the like, afford nitre by long exposure to the air. Artificial nitre beds are made by an attention to the circumstances in which the salt is produced by nature. Dry ditches are dug, and covered with sheds, open at the sides, to keep off the rain; these are filled with animal substances of all kinds, and occasionally watered, and turned up, from time to time, to accelerate the process by increasing the surfaces to which the air may apply. When a certain portion of nitrate is formed, the process appears to go on more quickly; but a certain quantity stops it altogether, and, after this cessation, the materials will go on to furnish more, if what is formed be extracted by lixiviation. After a succession of many months, more or less, according to the management of the operation, in which the action of a regular current of fresh air is of the greatest importance, nitre is found in the mass. If the beds contained much vegetable matter, a considerable portion of the nitrous salt will be common saltpetre; but if otherwise, the acid will, for the most part, be combined with the calcareous earth; to extract the saltpetre from which, a number of large casks are prepared, with a cock at the bottom of each, and a quantity of straw within to prevent its being stopped up: into these the matter is put, together with wood-ashes, either strewed at top or added during the filling. Boiling water is then poured on, and suffered to stand for some time, after which it is drawn off, and other water added, in the same manner, as long as any saline matter is afforded. The weak brine is heated, and passed through other tubs, until it becomes of considerable strength; it is then carried to the boiler. It contains nitre and other salts, the principal one of which is common salt. It is the property of nitre to be much more soluble in hot than in cold water, as has been seen above; but common salt is very nearly as soluble in cold as in hot water. Whenever, therefore, the evaporation is carried by boiling to a certain point, much of the common salt will fall to the bottom, for want of water to hold it in solution, though the nitre will remain suspended by virtue of the heat. The common salt thus separated is taken out with a perforated ladle; and a small quantity of the fluid is cooled, from time to time, that its concentration may be known by the nitre which crystallizes in it. When the fluid is sufficiently evaporated, it is taken out and cooled, and a great part of the nitre separates in crystals, while the remaining common salt continues dissolved, because equally soluble in cold as in hot water. Subsequent evaporation of the residue will separate more nitre in the same manner. By the suggestion of Lavoisier, a much simpler plan was adopted; reducing the crude nitre to powder, and washing it twice with water. This nitre, which is called *nitre of the first boiling*, contains some common salt, from which it may be purified by solution in a small quantity of water, and subsequent evaporation; for the crystals thus obtained are much less contaminated with common salt than before, because the proportion of water is so much larger, with respect to the small quantity contained by the nitre, that very little of it will crystallize.—The *uses of nitre* are various. Besides being employed in the composition of fluxes, and for the purposes of metallurgy, it serves to promote the combustion of sulphur in fabricating sulphuric acid. It is used in the art of dyeing; it is added to common salt for preserving meat, to which it gives a red hue; it is prescribed in medicine as a cooling febrifuge and diuretic, and some have recommended it, mixed with vinegar, as a very powerful remedy for the sea-scurvy.—*Sulphate* of potash is formed by adding diluted sulphuric acid to a solution of carbonate of potash, until the acid and alkaline properties are neutralized. It crystallizes in six-sided prisms, with pyramidal terminations, and requires for its solution seventeen parts of water at 60°, and five parts at 212°. Its taste is bitter.—*Bi-sulphate* of potash is the salt remaining after the decomposition of nitre by sulphuric acid. It contains twice the quantity of acid in the sulphate, has a very sour taste, and reddens vegetable colors, and is more soluble than the sulphate. *Phosphate* of potash forms a gelatinous mass, which attracts humidity from the atmosphere: its taste is saline, with a degree of sweetishness. *Sub-borate* of potash is soluble in water, and by evaporation affords prismatic crystals, which are not changed by exposure to the air. *Muriate* of potash has a saline taste, which is slightly bitter. Its crystals are cubic, and decrepitate when heated. *Chlorate* of potash, or *hyperoxymuriate*, may be formed by receiving chlorine as it is formed into a solution of potash. When the solution is saturated, it may be evaporated gently, and the first crystals produced will be the salt in question. They are shining, hexahedral laminæ, or rhomboidal plates. Its taste is cooling and disagreeable. Specific gravity, 2. Sixteen parts of water at 60°, and two and a half of boiling water, dissolve one of it. The purest oxygen is obtained from this salt, by exposing it to a gentle heat. Its effects upon inflammable substances are very powerful. Two grains, rubbed into a powder in a mortar, and mingled with one grain of sulphur, give a loud detonation when struck upon an anvil with a hammer. Five grains of the salt, mixed, in the same manner, with two and a half of charcoal, will be inflamed by strong trituration. If a little sugar be mixed with half its weight of the powdered chlorate, and a little strong sulphuric acid poured on it, a sudden inflammation will ensue. If to one grain of the salt in a mortar we add half a grain of phosphorus, and communicate to it a slight trituration, it will detonate with great violence, and attended with some hazard to the operator from the jets of burning phosphorus. Chlorate of potash is decomposed by the acids, accompanied with the evolution of a dense yellowish-green vapor, which acts with great energy on inflammable substances. In this way a light may be easily obtained, at any time, by placing a few grains of the salt on a piece of paper, dropping a little oil of turpentine on them, and then adding a drop of strong sulphuric acid; the oil will be immediately inflamed, and will kindle the paper. In the common match-bottles for procuring a light, a mixture, consisting of sugar, like that above described, except the presence of a little mucilage to form the compound into a paste, is spread over sulphur matches, which are dipped into a bottle containing a portion of strong sulphuric acid, retained by fibres of amianthus, or spun glass. Chlorate of potash consists of 9.5 chloric acid and 6 potash. *Fluate* of potash has a sharp taste, is deliquescent, very soluble in water, and not easily crystallizable. *Hydriodate* of potash is very soluble in water. When dried, it is decomposed, like the other hydriodates, and is converted into iodide of potassium. We have alluded to the most important uses of potash in the arts and medicine. It may be added that, besides being produced in the vegetable, it is found in the mineral kingdom, either as a saline combination, or as an ingredient in earthy fossils; and it is likewise found in several of the animal fluids and solids. The amount of pot and pearlashes exported from the U. States in the year ending September 30, 1830, was 8957 tons, valued at 1,105,127 dollars.

Potato (*solanum tuberosum*). Mankind owe this invaluable root to the continent of South America, where it grows wild, and where it was cultivated long previous to its introduction into Europe. Clusius is the first European writer who mentions it, about the year 1588, and from this period it spread into the different parts of the eastern continent with greater or less rapidity. The potato has been cultivated in Suabia and Alsace only since 1720, and did not reach Switzerland till 1730. Almost every where its introduction met with great opposition. The French, especially, were excessively prejudiced on the subject; and it was not till a time of scarcity, during the revolution, had fastened it upon them, that its culture became general. Now, however, it is almost universally cultivated within the tropics, and to latitude 64° north, in Sweden; and it seems to be adapted to all exposures, and almost every soil. The potato has added millions to the population of Europe, and has there rendered unknown those famines which formerly were so frequent and so distressing. The roots are large tubercles, rounded or oblong, almost always white internally, but differing, in different varieties, in the color of the skin, which is of various mixtures, of brown, purple, red, yellow, and white. The stems are angular, herbaceous, and from one and a half to two feet high. The leaves are pinnate, composed of five or seven lanceolate oval leaflets, having lesser ones between them. The flowers are pretty large, numerous, and disposed in corymbs upon long peduncles, which are inserted opposite to the superior leaves; their color is violet, bluish, reddish, or whitish. The fruit is of moderate size, and reddish-brown when ripe. The potato succeeds best in a light sandy loam, containing a certain proportion of vegetable matter. The usual mode of planting is by cutting the roots in pieces, reserving one eye, or bud, to each piece, and covering these with earth. It is a much more certain crop than any other, having little to fear from storms, or hail, or even from long droughts, or continued rains. It is, besides, planted the latest of all, and gathered in when all others have been disposed of. The varieties of the potato are very numerous, differing in the time of ripening, in their form, size, color, and quality; and, in general, every district has its peculiar or favorite ones; and their names are quite arbitrary, or local. Some degenerate, and others improve, by removal to another district. New ones are readily procured by sowing the seeds, which, with care, will produce tubers the third year, and a full crop the fourth. In addition to the usual culinary uses of potatoes, bread may be made by mixing with them a nearly equal portion of wheat flour; and also a kind of cheese, by reducing them to the consistence of paste, adding an equal quantity of curd, and, with a little salt, and some other ingredients, mixing the whole together, and forming it in moulds. Alcohol is very extensively distilled from them in Europe. Starch may be made by the simple process of scraping them in water, and well washing the pulp, when the starch settles to the bottom in a heavy and dense sediment. This starch is not only used for the same purposes as that prepared from wheat, but also as a size, which does not putrefy, like that produced from animal substances, and has no disagreeable smell. Yeast may also be prepared from the potato, and even the seed-vessels may be employed as a pickle; and, when properly prepared, are said to be superior to the cucumber.

Potemkin, Gregory Alexandrowitsch, prince, and Russian field-marshal, was born in 1736, at Smolensk, of a family of Polish extraction. Of all the favorites of the empress Catharine II, Potemkin was for thirty-two years the only one who gained the complete control of public affairs. According to the description which Dohm gives of him, in his memoirs, he was only a bold and artful courtier, without solid political knowledge. His rapid success, his great influence, the power which he exercised over the empress, and even his Oriental and affected manner of life, have frequently caused him to be viewed as an extraordinary man, whose faults were merely the results of his great qualities. His rudeness and caprice have been construed into originality, and the free scope which he gave his passions has been taken for greatness. Potemkin was without moral worth; nay, more—he was a very ordinary man, who, favored by extraordinary circumstances, became engaged in important relations. After the early death of his father, he entered the military service, and, two years later (1762), became an ensign in the horse-guards. As Catharine was riding through the ranks in uniform, for the purpose of gaining the troops to favor her advancement to the throne, Potemkin perceived that she had no tassel on her sword. He immediately untied his own, and presented it to the empress. His form and his attention made an impression upon her. He soon confirmed himself in her favor, after he was admitted to her society. He supplanted his rivals, especially the brothers Orloff, and, in 1776, was the declared favorite. The hatred of his rivals was increased by his arrogance, and in a duel with Alexis Orloff, he lost an eye. This circumstance made him more dear to the empress, and as he retired occasionally, from prudence, he escaped becoming tiresome. Catharine appointed him minister of war. He succeeded in persuading the empress that he was indispensable for her security. She was sensible that she was hated by many powerful men; she also feared her son, to whom she had engaged to transfer the throne on his majority, and regarded Potemkin as a daring, resolute man, capable of putting down opposition. She committed to him, therefore, unlimited power, before which she herself, at last, trembled. Nevertheless, he maintained, from 1776 until his death, a space of sixteen years, a boundless sway over the empress, in spite of his enemies. From 1778 till his death, he exercised almost the whole direction of foreign affairs, which he conducted in a daring and reckless spirit. He caused a proposal to be made to Frederic II, in 1782, through count Görz, for a new division of what remained of Poland. "The first division," he said, "was only child's play; had the whole been divided at that time, the cry would have been no louder." When the king rejected this proposal on grounds of right, prince Potemkin was so astonished that, after a third perusal of the answer, he returned it to the minister with the words, "I should never have imagined that king Frederic was capable of romantic notions." In 1783, when the Tartars of the Crimea refused to acknowledge the authority of the empress, the generals had orders to cut down the refractory. One general refused to comply, saying that he was no executioner; but Paul Potemkin, a relation of the prince, executed the commission, and caused 30,000 men, women, and children, to be seized and put to death. While governor-general of Taurida, Potemkin treated the Tartars with the greatest cruelty, and thus depopulated the province. He was jealous of all which interfered with his vanity or ambition. Every man distinguished by merit, birth or riches, was treated with indignity. The representatives of foreign powers were treated as his subjects. His arrogance towards the empress was such that he was even said to have struck her. Certain it is, that he often opposed her wishes, and purposely acted contrary to them. On the other hand, he deluded her by the boldest flattery, accommodated to her character, as, for example, in 1787, on her journey to Taurida. (See *Catharine II.*) Another time, he reviewed, before the empress, the same regiments on different days, in different uniforms, in order to convince her that the numbers of the army were complete. The Prussian ambassador, count Görz, says of him, "He is a man who has genius and talents, but his character does not attract love or esteem." Potemkin, however, directed his attention to some useful objects. He proposed to the empress to take possession of the Crimea, and to lay the foundation of the city of Cherson, on the Dnieper, about seven leagues from Oczakow, in 1778. He introduced fruit-trees into Taurida. Petersburg is also indebted to him for a manufactory of glass and looking-glasses, which equals, in the size and beauty of its productions, those of Venice and Paris. Potemkin paid particular attention to the arts, was passionately fond of music, and had eighty musicians in his train. In 1776, he was made a prince of the German empire. Afterwards he wished to become duke of Courland. In 1787, Catharine gave him the name of the *Taurian* (Tawritscheskoi). The riband of the order of St. George, which could be bestowed only on a commander-in-chief after a victory, was wanting to complete his honors. Hence, in 1787, he enticed the Porte to a declaration of war. The (so called) Greek system, and the expulsion of the Turks from Europe, was his favorite plan, the execution of which seemed to him at hand after Catharine's above-mentioned journey to Taurida, and her connexion with Joseph II. In case of its success he expected to hold Moldavia and Walachia, as an independent principality, under the protection of Russia. At the commencement of the war, Potemkin was placed, with unlimited power, at the head of an army of 150,000 men, and distinguished generals served under him. The war was carried on with fury on the plains of Oczakow, Cuban and Little Tartary. Hunger and pestilence increased the universal distress. Nevertheless, Potemkin undertook the siege of Oczakow, which lasted from July to the 17th of December, 1788. Potemkin, at last, ventured a decisive blow, in order that he might not be compelled to raise the siege. In the night of December 17th, he took the works by storm, though they had received hardly any injury, but a small breach. The attempt, however, would have failed but for the blowing up of a powder magazine. The slaughter was terrible; the city was plundered for three days; more than 30,000 men perished on both sides; but Potemkin received the great riband of St. George, a present of 100,000 roubles, the title of hetman of the Cossacks, and a baton set with diamonds and encircled with branches of laurel. When he returned to Petersburg, in March, 1791, the empress caused splendid festivals to be prepared in honor of him, gave him the Taurian palace and a dress set with diamonds. The author of the war, however, was seized with the sickness which raged in the camp. Without regarding the advice of the most celebrated physicians of Petersburg, who attended him, he continued his excesses. As the air of Jassy was prejudicial to him, he set out for Nicolajeff; but, on the second day of his journey, he became so unwell that he descended from the carriage and expired in the arms of his niece, the countess Branicka, under a tree, on the 16th of October, 1791. His body was carried to Cherson, where the empress appropriated 100,000 roubles for the erection of a monument to him, which was never completed. Afterwards, the emperor Paul caused the corpse of his mother's favorite to be taken from its coffin, and thrown into the ditch of the fortification, and neither the coffin nor body is now to be found. Satiated even to disgust with sensual pleasure, Potemkin denied himself nothing, and satisfied every passing whim by a prodigal waste of the money of the state, and a wanton sacrifice of the lives of others. Though the empress denied him nothing, and the sums of money which she expended on him exceeded all belief, still he was mean enough to appropriate to himself the money intrusted to him for other purposes, and even to forge orders on the treasury, in the name of the empress, in order to obtain for himself the money which was necessary for supplying the wants of the state. Potemkin also suffered himself to be purchased by foreign powers. While possessed of incredible wealth, and throwing away the largest sums at the gaming table, or in the gratification of his whims, he did not pay the bills of those who furnished his ordinary supplies. Those tradesmen considered themselves ruined who received orders to furnish goods to Potemkin.

Pothier, Robert Joseph, a celebrated French jurist, born 1699, died 1772. His digest of the maxims and principles of the Roman law, contained in Justinian's pandects, under the title of *Pandectæ Justinianeæ in novum Ordinem digestæ*, was more highly esteemed in foreign countries than at home. Of his profound knowledge of the *droit coutumier*, we have a proof in his *Introduction à la Coutume d'Orléans*, and the commentary which accompanies it. His different treatises on various points of legal science are in the highest esteem. The first, which is a sort of foundation for the others, is his *Traité des Obligations*, which, as is also the case with the rest, displays a methodical mind, and is distinguished for clearness, profundity and precision, and for its high tone of morality, which was in accordance with the character of his life. Pothier was appointed professor of French law at the university of Orleans, and appropriated the salary attached to his office for premiums to his most industrious pupils. All his works, except the Pandects, are contained in the edition of Siffrein (Paris, 1821—23, 17 vols., 8vo.).

Potocki; the name of an ancient Polish family, of which we shall here mention several of the most distinguished members.—1. Count *Paul* was an illustrious statesman and scholar of the seventeenth century, whose works were published by Zaluski, with the addition of a *Genealogia Potockiana*.—2. Count *Anthony*, grandson of the preceding, was ambassador of Augustus II to Russia, and, in the reign of Augustus III, marshal of the nobility. His masterly speeches are, in part, given in Daneykowicz's *Suada Polona*.—3. Count *Stanislaus Felix*, the commander of the Polish artillery acted an important part in the troubles of 1788. He adhered pertinaciously to the old constitution of the republic, and exerted his influence against the constitution of May 3, 1791. (See *Poland*.) Potocki so far forgot his duty to his country as to form connexions with Russia, and, in May, 1792, joined with Rzewuski and Branicki in the declaration at Targowicz against the constitution. He then united himself with the Russian army, and was one of the leaders of the diet of Grodno, which abolished the constitution and subscribed the act for the partition of the country. (See *Poniatowski*.) He was thought to aspire to the crown, and received several important appointments from Catharine II. When the Cracow confederation, under Kosciusko, Kolontay, Ignatius Potocki, &c., had occasioned the expulsion of the Russians from Warsaw and Wilna, he fled to Russia, and was condemned by the supreme tribunal of the republic as a traitor to his country, and his estates were confiscated. Catharine, however, restored his estates, and made him commander-in-chief. He died in 1803.—4. Count *Ignatius*, his cousin, born 1751, grand marshal of Lithuania, united with Malachowski, Kolontay and other patriots in support of the constitution of May 3, 1791. He also procured the declaration of the king in favor of it, and, in 1792, went to Berlin for the purpose of inducing the Prussian court to protect the Poles from Russia. When the Russian troops took possession of the country, Potocki fled to Dresden, and was deprived of his estates. In 1794, he returned to Warsaw, to engage in the attempt of Kosciusko, was appointed general, and member of the supreme national council. After the capture of Warsaw, he remained in the city, trusting to the capitulation concluded with Suwarroff, but he was arrested in December, and confined as a state prisoner in Russia, until he was released by Paul, in 1796. In 1806, he again engaged in public affairs, and exerted himself to effect the abolition of slavery, and to promote the progress of education among the people. He died in 1809.—5. Count *Stanislaus Kostka*, his brother, was always faithful to the cause of his unfortunate country. He distinguished himself greatly by his information and his eloquence, in the various diets which were held between 1788 and 1792. In the latter year, he became general of artillery. When the king acceded to the confederation of Targowicz, and by that false step consummated the ruin of Poland, count Potocki retired into Austria; but he was arrested there, and imprisoned in a fortress. On being restored to liberty, there being no hope of breaking the chains of his countrymen, he retired to his estate, and devoted himself to the sciences and arts. When, however, the French penetrated, in 1807, into Poland, he rallied around him the friends of independence; and, on the grand-duchy of Warsaw being established, he was chosen one of the plenipotentiaries to Napoleon. While the grand-duchy existed, he held various high offices. When Napoleon meditated the restoration of the ancient kingdom of Poland, Potocki's talent and influence were called into action by him; and the abbé de Pradt pays to the count a warm tribute of praise on this occasion. In 1815, count Potocki was appointed minister for ecclesiastical affairs and public instruction, and was afterwards chosen president of the senate. He died in 1822. He was the author of a work on eloquence, and of a Polish translation of Winckelmann's work on art.

POTOMAC; a river which rises in the Alleghany mountains, and forms, through its whole course, the boundary between Maryland and Virginia. It passes by Shepherdstown, Georgetown, Washington city, Alexandria, and other places, and flows into Chesapeake bay, between point Lookout and Smith's point. It is seven and a half miles wide at its mouth, and one and a quarter at Alexandria, 290 miles from the ocean. The termination of the tide water is above 300 miles from the sea, and the river is navigable for the largest ships through nearly that distance. Its junction with the Shenandoah, at Harper's ferry, is regarded as a great curiosity. (See *Harper's Ferry*.) The river is seven fathoms deep at its mouth, five at St. George's island, three at Swan's point, and thence to Alexandria. Above Washington city, there are many obstructions to the navigation.

POTOSI; a city of Bolivia (q. v.), in the province of the same name; lat. 19° 34′ S.; lon. 67° 22′ W. It was founded in 1547; the royal mint was established in 1562, and the population increased so rapidly that in 1611 it amounted to 160,000, but in 1826 had sunk to 11,200. The mountain of Potosi is 16,250 feet high; and the city stands on a plain 11,000 feet above the sea. The streets are narrow and irregular; the houses are built of stone or brick, of only one story, with balconies of wood, but without chimneys. The city contains three monasteries, five convents, an hospital, a college, nineteen parish churches, and a mint. The mines were discovered by Diego Hualca, an Indian peasant, when pursuing wild goats. Arriving at a steep place he laid hold of a small shrub to prevent himself from falling; but the shrub, being unable to support his weight, was torn up by the roots, and disclosed to the hunter a rich mass of silver, lumps of which adhered to the earth that came away with the plant. Not long afterwards the discovery was made known, and the mine was opened in 1545. From the time of the first discovery to 1803, these mines supplied 1,095,500,000 piastres, or £237,358,334 sterling, which paid the royal duties; and this only includes silver. If the gold and smuggled metals were included, the amount would be much greater. According to the official statement, the amount coined from 1790 to 1794, inclusive, was $27,967,566, i. e. on an average, $5,593,513 yearly. The present diminution of the quantity of silver from what it was formerly, is stated by Pazos as four to one; by Humboldt the diminution is stated to be greater; but they are still the richest mines in South America. The number of mines worked was formerly 300; in 1803, only 97. According to Helms, nothing can equal the ignorance with which the mining operations are conducted; if judiciously managed, the quantity of silver might be doubled.

Pot-pourri (*French*) signifies the same as *olla podrida*. (q. v.) It also signifies a vessel containing flowers or plants, and more generally any sort of medley. (See *Quodlibet*.)

Potsdam; a residence of the king of Prussia, seventeen miles west from Berlin, on the river Havel, with 25,000 inhabitants, of whom 5700 are soldiers. Several troops of the guards are always stationed here. It has five churches, one synagogue, and 1600 houses. It contains palaces and gardens, chiefly built and laid out by Frederic the Great (whose favorite residence was Potsdam), at an immense expense, a military orphan house for 600 children, in exemplary order (besides 2000 other children of military persons who are provided for by this establishment), with various other public buildings; but the general appearance of the place is cheerless, because it has no manufacturing industry, nor commerce. A very fine road leads from Berlin to Potsdam, through a most uninteresting plain. Potsdam itself, however, is rather pleasantly situated; lon. E. 13° 5′; lat. N. 52° 24′ 19″.

Potter, de. (See *Netherlands*, in the Appendix at the end of the work.)

Potter, John, primate of all England, born in 1674, was the son of a linen draper of Wakefield, in Yorkshire, in the grammar school of which town he received the rudiments of a classical education. He then became a member of University college, Oxford, where, in his twentieth year, he published *Variantes Lectiones et Notæ ad Plutarchi Librum de audiendis Poetis; et ad Basilii magni Orationem ad Juvenes quomodo cum Fructu legere possint Græcorum Libros*. The next year he became fellow of Lincoln college, and, in 1697, printed an edition of Lycophron. Soon after appeared his *Archæologia Græca*, or the Antiquities of Greece, in 2 vols., 8vo., which has gone through many editions, and is almost indispensable to the classical student. In 1706, he became chaplain to queen Anne, on which occasion he graduated as doctor in divinity. In 1715, being then regius professor of divinity, he was raised to the see of Oxford, and, in 1737, was appointed archbishop of Canterbury. He died in 1747. His works, besides those enumerated, are, a Discourse on Church Government (1707); an edition of Clemens Alexandrinus (1714); and theological works, printed together, in 3 vols., 8vo. (Oxford, 1753).

Potter, Robert, born in 1721, graduated at Cambridge, 1741, died in 1804, was an admirable classical scholar, distinguished by his excellent translations of the works of Æschylus (1777), Euripides, Sophocles (1788), equally remarkable for the spirit and fidelity with which they are rendered.

Potter, Paul; a painter of animals, born at Enkhuisen, in 1625, was the son of Peter Potter, a painter, from whom he received his first instruction, but to whom he himself was greatly superior. As early as his fifteenth year he had executed a work which was universally admired; and, after he settled at the Hague, he was unable to satisfy the demand for his works. His department was the painting of animals and landscapes, but he was more particularly successful in the former; the latter were designed merely to afford an opportunity for exhibiting animals in different attitudes and circumstances. His coloring is uncommonly brilliant, and the separate parts are most delicately executed, yet without any appearance of stiffness or mannerism. His pieces were generally of a small size; but there is one in the Louvre, which originally belonged to the prince of Orange, representing a man and cattle as large as life. His walks were always occupied in study; whatever struck his fancy, he immediately sketched. He died in 1654, at the age of twenty-nine years, at Amsterdam, where he had been residing two years. His engravings are not less esteemed than his paintings. His cabinet pieces command a very high price. His celebrated Cow, which was taken from the Cassel gallery to Paris, was bought by Alexander, emperor of Russia, for about 4000 dollars.

Potter's Clay. (See *Clay*.)

Pottery. The art of forming vessels or utensils of any sort of clay, kneaded with water, and hardened in the fire, is of high antiquity; and we find mention of earthen ware in the Mosaic writings. The Greeks, at an early period, had potteries at Samos, Athens, and Corinth. Demaratus, father of Tarquinius Priscus, is said to have instructed the Etruscans and Romans in this art, of which the Etruscan vases show the great perfection.

In the different kinds of earthen ware, the different degrees of beauty and costliness depend upon the quality of the raw material used, and upon the labor and skill expended in the operation. (See *Clay*.) The cheapest products of the art are those made of common clay, similar to that of which bricks are formed, and which, from the iron it contains, usually turns red in burning. (See *Bricks*.) Next to this is the common crockery ware, formed of the purer and whiter clays, in which iron exists only in minute quantities. Porcelain, which is the most beautiful and expensive of all, is formed only from argillaceous minerals of extreme delicacy, united with siliceous earths, capable of communicating to them a semi-transparency, by means of its vitrification. (See *Fayence*, and *Porcelain*.) Though the various kinds of pottery and porcelain differ from each other in the details of their manufacture, yet there are certain general principles and processes, which are common to them all. The first belongs to the preparation of the clay, and consists in dividing and washing it, till it acquires the requisite fineness. The quality of the clay requires the intermixture of a certain proportion of siliceous earth, the effect of which is to increase its firmness, and render it less liable to shrink and crack, on exposure to heat. In common clay, a sufficient quantity of sand exists in a state of natural mixture, to answer this purpose. But in the finer kinds, an artificial admixture of silica is necessary. The paste which is thus formed is thoroughly beaten and kneaded to render it ductile, and to drive out the air. It is then ready to receive its form. The form of the vessel intended to be made is given to the clay either by turning it on a wheel, or by casting it in a mould. When dry, it is transferred to the oven or furnace, and there burnt till it acquires a sufficient degree of hardness for use. Since, however, the clay is still porous, and of course penetrable to water, it is necessary to glaze it. This is done by covering the surface with some vitrifiable substance, and exposing it a second time to heat, until this substance is converted into a coating of glass. (See *Glazing*.) In the coarse earthen ware, which is made of common clay, the clay, after being mixed and kneaded, until it has acquired the proper ductility, is transferred to a revolving table, called the *wheel*. A piece of clay being placed in the centre of this table, a rotary motion is communicated to it by the feet; the potter then begins to shape it with his hands; the rotary motion gives it a circular form, and it is gradually wrought up to the intended shape, a tool being occasionally used to assist the finishing. The vessels are now set aside to dry, after which they are baked in the oven or kiln. *Stone ware* may be formed of the clays which are used for other vessels, by applying to them a greater degree of heat, which increases their strength and solidity. These vessels afford the material of their own glazing by the vitrification of their surface. When the furnace in which they are burnt has arrived at its greatest heat, a quantity of muriate of soda, or common salt, is thrown into the body of the kiln. The salt rises in vapor and envelopes the hot ware, and by the combination of its alkali with the siliceous particles on the surface of the ware, a perfect vitrification is produced. This glazing, consisting of an earthy glass, is insoluble in most chemical agents, and is free from the objections to which vessels glazed with lead are liable—that of communicating an unwholesome quality to liquids contained in them, by the solution of the lead in common acids which they frequently contain. *White ware* is made of white clay, or of clay containing so little oxide of iron that it does not turn red in burning, but improves its whiteness in the furnace. (See *Wedgewood*.) The manufacture of pipes is also a branch of pottery. Pano, a Spanish monk, first introduced earthen pipes from St. Domingo into Spain. A manufactory was established in England by James I, in 1621, and not long after, a similar one was set up at Tergow by the Dutch. The clay used for pipes must burn white, be carefully cleansed, and kneaded up to a tenacious paste. Small lumps of the paste, of a suitable size, are then formed on the wheel into cylinders, bored by the laborer with a wire, and shaped in brass moulds. The head is then hollowed by a stopper pressed into it, and the whole is again smoothed and polished, and the pipes are then baked. After baking, they are again polished with wax, gum tragacanth, or grease. (For enameled ware, see *Enameling*.) See the History of the Manufacture of Porcelain and Glass, No. 26 of Lardner's *Cyclopædia* (London, 1832).

Potwallopers. (See *Preston*.)

Poudre de Succession (French, *succession powder*); poisonous powder, once prepared in Italy and France to a great extent, to kill people slowly. The horrid art of poisoning never excited more attention in France than about the year 1670, when the extent of the crimes of the marchioness of Brinvilliers became known. A numerous society of young women, under the direction of an old woman, of the name of Hieronyma Spara, was discovered in Rome, in 1659, who had administered poison to many people among the highest classes, to rid wives of their husbands, and husbands of their wives, children of their parents, &c. The history of this foul blot in the records of mankind may be found, with many particulars of a painful interest, in Beckmann's History of Inventions, &c., translated by Johnston (vol i, division *Secret Poison*). Though the times when poisoning was habitually practised have past, yet, in some cases, it has, even in our times, been carried to an inconceivable extent. In 1831, a woman of the name of Gottfried was executed in Bremen, Germany, for having successively poisoned more than thirty persons (among whom were her parents, children, husbands, friends, servants), by means of butter mixed with arsenic, used to poison mice.

Pougens, Marie Charles Joseph de, a French poet, born at Paris, in 1755, was the son of a great person at court, and, while yet a youth, attempted an imitation of Gessner's Idyls, in a poem which he called *L'Aurore*. Being designed for a diplomatic career, he was sent to Italy, with the consent of the king, and with letters of recommendation from a prince of the blood to cardinal Bernis. Here, in 1777, he projected his great work *Trésor de la Langue Française*, on the plan of Johnson's dictionary. An attack of the small pox, in his twenty-fourth year, deprived him forever of his sight; yet he continued his researches, and was sent to England as a public agent. The revolution deprived him of his pension of 10,000 livres, and, after attempting to gain a subsistence by translations, he entered the book trade, without capital or experience. His persevering industry, however, soon placed him at the head of a large establishment; but several bankruptcies nearly involved him in complete ruin, from which he was saved by a loan of 12,000 francs from a distinguished benefactress, and a further loan of 40,000 francs from Bonaparte, then first-consul, who afterwards, on his repayment of half of that sum, granted him the remainder outright. In 1808, he retired from business, and has since lived, devoted to study and his friends, at the estate of a benefactress in the valley of Vauxbuin, near Soissons. Of his numerous works we may mention *Récréation de Philosophie et de Morale*; *Essai sur les Antiquités du Nord*, &c.; *Archéologie Française, ou Vocabulaire de Mots anciens Tombés en Désuetude* (2 vols., 1823); *Les Quatre Ages*, a poem; *Abel, ou les Trois Frères*; *Jocko, sur l'Instinct des Animaux* (1824); *La Religieuse de Nîmes*; *Lettres sur divers Sujets de Morale* (1824). In 1819, he published a *specimen* of his *Trésor*, and was soon after received into several foreign academies. Pougens was, in 1806, appointed by the empress mother of Russia her literary correspondent; and he afterwards held the same appointment from the late prince Constantine.

Poughkeepsie, in New York, is situated on the east shore of the Hudson, seventy-five miles south of Albany, and seventy-four north of New York. There are five landings, with convenient storehouses, wharves, &c., and the trade is extensive. On the south line of the township is the small post village called *New Hamburgh*. *Barnegat* is the name of a place on the shore of the river, where great quantities of lime are manufactured. The trade at the landings employs many packets. The village of Poughkeepsie is situated on a plain nearly a mile from the river, on the post-road from New York to Albany. It contains the county buildings, five meeting-houses, a bank, an academy, and several factories. Many of the buildings are of stone, but the new ones are of wood or brick. Population in 1820, 5726; in 1830, 7222.

Poultices. (See *Cataplasms*.) Mustard poultices are called *sinapisms*. (q. v.)

Pounce; gum sandarach, pounded and sifted very fine, to rub on paper, in order to preserve it from sinking, and to make it more fit to write upon. *Pounce* is also charcoal dust, enclosed in a piece of muslin, or some other open stuff, to be passed over holes pricked in a work, in order to mark the lines or designs on paper, silk, &c., placed underneath, which are to be afterwards finished with a pen and ink, a needle, or the like.

Pound; an English weight, of different denominations, as *avoirdupois*, *troy*, *apothecaries'*, &c. The pound avoirdupois is sixteen ounces of the same weight, but the other pounds are each equal to twelve ounces. The pound avoirdupois is to the pound troy as 5760 to 6999½, or nearly as 576 to 700. (See *Measures*.)—*Pound* is also the highest denomination used by the English in their money accounts, being equal to twenty shillings.

Poursuivant, or **Pursuivant**, in heraldry; the lowest order of officers at arms.

The poursuivants are, properly, attendants on the heralds, when they marshal public ceremonies.

Poussin, Nicholas, historical and landscape painter, born at Andelys, in Normandy, in 1594, was descended from a noble but poor family. He first studied in his native place, and then at Paris, under masters of little merit; but he made astonishing progress. He had already acquired considerable reputation, when, in 1624, he went to Italy for the purpose of improving himself in his art. At Rome, Marini the poet became his friend, and inspired him with a taste for the Italian poets, in which Poussin found rich materials for the subjects of his paintings. After the death of Marini, he was left without patronage, and obliged to sell his productions at very low prices. He continued, nevertheless, indefatigable in the study of geometry, perspective, architecture, anatomy, and other sciences necessary for a painter, and in the practice of his art. His conversation, his walks, his reading, were also almost always connected with it. In his figures, he copied antiques; he modelled statues and reliefs with great skill; and he might have become an excellent sculptor. In his landscapes he followed nature: they usually represent plains with magnificent ruins. All his works show much study; nothing is introduced without a purpose, or merely as an afterthought. He at length found liberal patrons in cardinal Barberini and the cavaliere Cassiano del Pozzo, for whom he painted the celebrated Seven Sacraments. These works likewise gained him celebrity in France; and cardinal Richelieu, at the suggestion of Desmoyer, invited him to Paris to paint the great gallery of the Louvre. Louis XIII appointed him his first painter, with a pension of 3000 livres. Poussin arrived in Paris in 1640, and executed numerous works, particularly historical pieces from the Old Testament, and a repetition of his Seven Sacraments, but was much harassed by his enemies. The painter Jacques Fouquiers had been employed to decorate the gallery with views of the principal cities of France, and the architect Mencier had overloaded it with ornament. Poussin found himself under the necessity of beginning his undertaking with the removal of their labors. He also had to contend with the whole school of Simon Vouet, who was protected by the queen; and his paintings were less justly appreciated by the French, who leaned to the brilliant and showy, than by the correcter taste of the Italians. An artist who loved quiet, and had been all his life devoted to his art, could not be contented in such a situation, and he soon determined to leave Paris. In September, 1642, while employed on cartoons of the labors of Hercules, for the gallery of the Louvre, he returned to Rome, which he never again quitted. He died there, in 1665. Although Louis XIV allowed him to retain his post and pension, yet he never became rich; his disinterestedness made him neglect the opportunity of acquiring wealth; he labored more for fame than for money. Full of veneration for the ancients, he aspired to the lofty ideal which he observed in them. His drawing is remarkably correct; his composition judicious, dignified, and noble. His invention was rich; his style grand and heroic. His expression approaches that of Raphael, and he has been called the *Raphael of France*. His merits were due to his own efforts. His only pupil was his brother-in-law, Gaspar Dughet, who became distinguished as a landscape-painter. (*See the next article.*) Poussin had studied the works of Titian, but his later productions are inferior in coloring to his earlier, since he paid less attention as he advanced in life to this branch of the art, and more to the design. Poussin has been censured for a too studied arrangement, and a too great propensity to episodes; too much uniformity in the attitudes, air and expression of his figures; an excessive fulness in the drapery, and too small proportions in his figures—faults which may have been owing to his close imitation of the ancients. But, notwithstanding these faults, Poussin may be compared with the greatest Italian masters. Among his most celebrated works are the Seven Sacraments, the Deluge, Germanicus, the Capture of Jerusalem, the Plague of the Philistines, Rebecca, the Adulteress, the Infant Moses, and Moses bringing Water from the Rock, the Worship of the Golden Calf, John baptizing in the Wilderness, &c., and many fine landscapes. Bellori has written his life, in Italian. Chateau, Poilly, and Claudine Stella, have engraved many of his works.

Poussin, Gaspar, a very eminent landscape-painter, was born, according to some authors, in France, in 1600, and to others, in Rome, in 1613. His real name was Dughet. His sister was the wife of Nicholas Poussin. The disposition which he early showed for painting caused him to be placed under his brother-in-law, whose surname he assumed; and, being a lover of the country and its sports, he devoted himself to rural sketches, and became one of the greatest masters of landscape upon record. He practised his art with great distinction in various parts of Italy, but chiefly in Rome, where he lived a life of celibacy, and freely expended his gains in hospitable attentions to his friends. He worked with extreme celerity, although nothing can exceed the beauty of his scenery and the precision of his perspective. He particularly excelled in the representation of land-storms, in which every tree seems agitated, and every leaf in motion. In his figures he was less happy, and they were frequently supplied by Nicholas. This skilful artist, whose performances are deemed very valuable, died, according to D'Argenville, in 1675, and to others in 1663; but the former date is preferred. He engraved eight of his own landscapes.

Powder of Succession. (See *Poudre de Succession.*)

Power, in arithmetic and algebra; that which arises by the successive multiplication of any number or quantity into itself, the degree of the power being always denominated by the number of equal factors that are employed: thus,

$2 = \ldots\ldots 2^1$, 1st power of 2.
$2 \times 2 = \ldots 2^2$, 2d power, or square.
$2 \times 2 \times 2 = 2^3$, 3d power, or cube.

Hence it appears, that the index which denotes the degree of any power, is always equal to the number of factors from which that power arises; or one more than the number of operations. (See *Exponent*, and *Involution.*)

Power, in law, is an authority which one man gives to another to act for him; and it is sometimes a reservation which a person makes in a conveyance for himself to do some acts, as to make leases or the like; thus, *power of attorney*, an instrument or deed whereby a person is authorized to act for another, either generally, or in a specific transaction.

Power, in mechanics, denotes any force, whether of a man, a horse, a spring, the wind, water, &c., which, being applied to a machine, tends to produce motion; also, any of the six simple machines, viz. the lever, the balance, the screw, the wheel and axle, the wedge, and the pulley. (See *Mechanics*, and *Horse Power.*)

Power Looms are driven by water or steam, and are now universally introduced into cotton and woollen manufactories.

Power of a Glass, in optics, is, by some, used for the distance between the convexity and the solar focus.

Powers, Great, of Europe; a term of modern diplomacy, by which are meant England, France, Austria, Prussia and Russia.

Powhatan; a famous sachem, of great authority among the Indian tribes in Virginia, at the period of its colonization. He was father of the celebrated Pocahontas. (q. v.)

Pownall, Thomas, born at Lincoln in 1722, became secretary to the commissioners for trade and plantations in 1745, and had a situation in the commissariat of the army in Germany. In 1753, he went to America, and in 1757 was appointed governor of Massachusetts bay, and, subsequently, of South Carolina. He remained there till 1761, when, returning to England, he was nominated director-general of the office of control, with the rank of colonel. He died at Bath, April 25, 1805. Governor Pownall was a fellow of the society of antiquaries, and a contributor to the Archæologia. He was also the author of Descriptions of Antiquities of the Provincia Romana of Gaul (1788, 4to.); Descriptions of Roman Antiquities dug up at Bath (4to.); Observations on the Currents in the Atlantic Ocean (1787, 4to.); and Intellectual Physics (4to.); besides many political tracts, as the Administration of the Colonies (London, 4th edition, 1768).

Poyais; a fertile tract of land, on the Mosquito shore, near the bay of Honduras, with a capital of the same name, inhabited by a warlike race of Indians (the Poyais), who have hitherto maintained their independence. Sir Gregor Mac-Gregor, a British officer, who served with reputation in Spain, was afterwards (1816) active in the Venezuelan revolution, and, in 1817, took possession of Amelia island, on the coast of Florida (then belonging to Spain), calling upon the inhabitants to embrace the cause of independence. In 1819, he attacked Porto Bello, which he captured, but was soon after surprised in his bed, and obliged to escape out of a window. Some years after, he settled among the Poyais, and gained their confidence to such a degree as to be chosen their cacique. He encouraged commerce, founded schools, &c. In 1824, the cacique of Poyais procured a loan in London, from respectable houses. The chief production of his dominions is indigo; they also yield sugar, coffee, cocoa, tobacco, mahogany wood, dye-stuffs, &c.—See the *Sketch of the Mosquito Shore, including the Territory of Poyais* (Edinburgh, 1824), by Strangeway, aid to the cacique

Pozzo di Borgo, count, one of the ministers of the emperor of Russia, was born in 1769, in the village of Alala, in Corsica. His family is noble, but poor. He embraced the profession of the law, but soon engaged in politics. In 1790, he was appointed to office under the protection of general Paoli, and, in the year following, was elected deputy to the national assembly, to whom, in 1792, he addressed a very elaborate speech, in the name of the diplomatic committee, to determine them to declare war against the Germanic body. After the 10th of August, however, he was compelled to withdraw from Paris by menaces of denunciation from Arena, a fellow-deputy, who had found his name, under suspicious circumstances, in the papers of Louis XVI. Having retired to Corsica, he renewed his political relations with Paoli. He was named president of the council of state, and attorney-general of the department. Four months later, a decree of the convention commanded him to appear at the bar, to explain his conduct and that of general Paoli. He refused to obey, and, in conjunction with Paoli, invited the English to take possession of the island. He was named president of the council under the new government, and afterwards secretary of state. In this situation it was not long before he found himself opposed to numerous enemies, and withdrew to England. He afterwards attached himself to the service of the emperor Alexander, and arrived at the highest diplomatic honors. In the latter campaigns he held the rank of major-general. In 1813, he was despatched on a mission to the prince-royal of Sweden, whom he accompanied to the battle of Leipsic. He afterwards accompanied the emperor Alexander in the campaign in France, at the commencement of 1814. After the restoration of Louis XVIII, he was appointed Russian minister-plenipotentiary to the new French government. He quitted Paris at the commencement of the revolution of March 20, 1815, but resumed his functions at the French court on the return of the king. In 1817, he was made lieutenant-general in the Russian service.

Pozzolana, in natural history, is a kind of substance formed of volcanic ashes. When mixed with a small portion of lime, it quickly hardens; and this induration takes place even under water. This singular property of becoming petrified under water, renders it peculiarly valuable as a cement, in the erection of moles, and other buildings, in maritime situations.

Pozzuoli; the ancient Puteoli. (See *Naples, City and Environs of.*)

Prado. (See *Madrid.*)

Pradon, Jean Nicolas, a poet, born at Rouen, died at Paris in 1698. His tragedies were received on their first appearance with great applause, and gained him the friendship of distinguished persons, among whom were St. Evremont and Mad. de Sévigné. Pradon even ventured to appear as a rival of Racine, having attempted a tragedy on the same subject on which the latter had already written. His *Phèdre et Hippolyte* was brought out in 1677, and for some time was actually preferred to that of Racine; but it has been long forgotten. His Regulus and Tamerlane are more known. Boileau made Pradon, who was, indeed, a very moderate poet, and extremely ignorant and arrogant, the subject of his satire. His dramatic pieces were published in 2 vols., 1744.

Pradt, Dominique Dufour de, formerly archbishop of Malines, (Mechlin,) born at Allanches, in Auvergne, in 1759, one of the most voluminous political writers of the day, was, before the revolution, grand vicar to the cardinal archbishop of Rouen. As a deputy from the clergy of Normandy to the constituent assembly, he was a more violent royalist than even the abbé Maury. On the dissolution of the assembly, Pradt signed the protest of the right side, left France, and went to Münster, where he became known to prince Gallitzin. In 1798, he published, anonymously, *L'Antidote du Congrès de Rastadt*, and afterwards *La Prusse et sa Neutralité*, two pamphlets, which attracted attention, and in which Pradt warmly opposed the peace with republican France. After the 18th of Brumaire, he returned to France. The first work which he published in that country, *Les trois Ages des Colonies*, in which he advocated their entire freedom, met with little encouragement. Nearly destitute of means, he applied to his relation, marshal Duroc, by whom he was presented to the emperor. The latter was so much pleased with his conversation, that he conferred on the abbé the post of imperial almoner. He was present at the coronation and consecration of the emperor, and was named baron and bishop of Poitiers. The pope himself consecrated him. He accompanied the emperor to his coronation at Milan, and in 1808 to Bayonne, where his services were required in the treaty with Escoiquitz. In 1809, he received the archbishopric of Malines; in 1811, he was employed in the negotiations with the pope at Savona, and, in 1812, the important embassy to Warsaw was intrusted to him. From this place he was driven by the approach of the enemy, after the disastrous campaign in Russia. Pradt has given a history of this embassy, and of Napoleon's return, in his *Histoire de l'Ambassade dans le Grand-duché de Varsovie* (1815), which passed through eight editions, and was translated into several languages; but its satirical tone is not suitable for history. He fell into disgrace, lost his place as almoner, and was obliged to retire to his diocese; but in 1814, he returned again to Paris, for the purpose of taking part in the restoration, and the negotiations connected with it. The provisional government assigned him the important post of chancellor to the legion of honor. He soon after, however, retired to his estate in Auvergne, and remained there during the hundred days. After the second restoration, Macdonald received the post of chancellor to the legion of honor. From that time, De Pradt has not held any office. He gave up his claims to the archbishopric of Malines for a pension of 10,000 francs from the king of the Netherlands. Since 1815, he has written *Du Congrès de Vienne; Récit historique sur la Restauration de la Royauté en France; Des Colonies et de la Révolution actuelle de l'Amérique; Les quatre Concordats; L'Europe après le Congrès d'Aix-la-Chapelle; Le Congrès de Carlsbad* (2 vols.); *De la Révolution de l'Espagne et de ses Suites* (1820); *Petit Catéchisme à l'Usage des Français sur les Affaires de leur Pays* (1820); *De l'Affaire de la Loi des Élections* (1820). He was prosecuted as a seditious writer, on account of this last publication. This trial excited a great sensation in Paris, both on account of the circumstances of the case, and of the brilliant eloquence displayed by him, and his advocate, Dupin, in consequence of which he was acquitted. See the *Procès complet de M. de Pradt pour son Ouvrage sur l'Affaire de la Loi des Élections* (1820). In 1821, he was again obliged to appear before the tribunal of the *police correctionnelle*, at Paris, on account of an article in the *Constitutionnel* of October 14th, relative to the congress at Verona, entitled *Mon Congrès*. He was defended by an advocate, and was acquitted. This article was directed against M. de Bonald, and advanced the opinion, that if France had declared herself for the constitutions of Spain, Portugal, and Naples, she would have had a population of fifty millions for her allies, and might thus have regained the influence which she had lost in Europe by the final overthrow of Napoleon. Pradt's work *De la Grèce dans ses Rapports avec l'Europe* (Paris, 1822), which contained much truth, though little that was new, excited a good deal of attention. In this work he maintained that a new Greek kingdom would present an additional check to the great powers, that Europe could not trust the delivery of Greece to Russia, &c. Soon after appeared his *Examen d'un Plan présenté aux Cortès pour la Reconnaissance de l'Independence de l'Amérique Espagnole* (Paris, 1822). About the same time this indefatigable author wrote the *Parallèles de la Puissance Anglaise et Russe relativement à l'Europe, suivis d'un Aperçu sur la Grèce* (1823), in which he advanced the opinion that there were only two states (England and Russia) in Europe that were really in full possession of their independence, and in a condition to adopt an active policy in their conduct towards other states, which had nothing left, but the alternative of joining one or the other of these two powers, and that France, in particular, must follow the British system. In 1824, De Pradt published *L'Europe et l'Amérique en 1822 et 1823* (2 vols.), the third of his works on this subject, in which he gives a historical view of the principles of government in the old and new worlds, erroneously considering European politics as composed of the struggle between absolute and constitutional monarchy. In his work *De la France, de l'Emigration et des Colons* (Paris, 1825), he declares himself against granting an indemnity to the *émigrés*, although he had himself been one of the number. His later writings are, *L'Europe par Rapport à la Grèce et à la Réformation de la Turquie* (Paris, 1826); and *Garantis à demander à l'Espagne* (Paris, 1827); in which he maintains the necessity of abolishing the monastic orders. Verboseness and repetition are the faults of his style, and his views are too partial and shallow. His motto is, *Le genre humain est en marche, et rien ne le fera rétrograder.*

PRÆTOR, PRÆTORIANS. (See *Pretor, Pretorians.*)

PRAGA; a fortified town of the kingdom of Poland (waywodeship of Masovia), on the right bank of the Vistula, opposite Warsaw, of which it may be considered as a suburb. It is connected with Warsaw by a bridge of boats, and contains 3000 inhabitants. After the battle of Macziewice, in which Kosciusco (q. v.) was made prisoner (October 10, 1794), Suwaroff advanced against Praga, the last bulwark of Poland, into which 20,000 men had thrown themselves. Zajonczek received the command of the garrison, 30,000 strong, which occupied a fortified camp before Praga. November 4, Suwaroff stormed Praga, which was taken, after a most bloody fight: 13,000 Poles covered the field of battle; more than 2000 perished in the Vistula, and 14,680 were made prisoners. Besides this loss, a great number of peasants, women, old men, children and infants, perished in the conflict and during the pillage. The Russian loss was trifling. Suwaroff (q. v.) wrote to the empress from the field of battle, "Hurrah! Praga! Suwaroff;" and was answered as laconically, "Bravo! General field-marshal." He entered Warsaw on the 9th; and the last partition of Poland (1795) was the consequence of the fall of Praga. (See *Warsaw*.)

Pragmatic Sanction. (See *Sanction, Pragmatic*.)

Prague (in German, *Prag*); capital of Bohemia, on the Moldau; archiepiscopal see; lat. 50° 5′ N.; lon. 14° 24′ E.; fifty-four leagues north-west of Vienna; population (including the garrison, 12,354 strong) 117,059, of whom 7400 are Jews, and the remainder principally Bohemians (see *Bohemia*) and Germans. Prague contains forty-six Catholic and two Protestant churches, eleven male and four female monasteries, nine synagogues, and six hospitals. It is surrounded by a wall and moat, and divided by the Moldau into two unequal parts, which are united by a handsome stone bridge of sixteen arches, 1900 feet in length. It consists of four divisions: the old city, comprising the Jews' quarter, and the new city, on the right bank of the river, and Hradschin and Little Prague (Kleinseite) on the left bank. To the south of Prague lies Wischehrad, an old citadel, well fortified, and containing an arsenal. Although Prague is well fortified, the works are too extensive, besides being commanded by the neighboring heights, to sustain a long defence. The streets are, in general, straight, regularly laid out, well paved, and provided with footpaths. The new city contains the handsomest streets; the houses are mostly built of stone, in a neat style, and several of them deserve the name of palaces. Among them is the palace of the famous Wallenstein (q. v.), which is one of the principal ornaments of the city. There are a number of handsome squares, and many elegant public buildings, among which are the town-house and the fine Gothic cathedral, containing the tomb of several Bohemian kings, and of St. John Nepomuk. (q. v.) The university, situated in the old city, is the oldest in Germany; it was founded, in 1348, by the emperor Charles IV, and until 1409 was in a most flourishing condition; but, in that year, the interference of the government in religious matters caused the secession of several thousand foreigners, and the consequent establishment of new universities at Leipsic, Ingoldstadt, Rostock and Cracow. The number of professors in the university of Prague is forty-four; of students, 1500; the library consists of 100,000 volumes, and 4000 manuscripts in the ancient and in Sclavonic literature. There are several other literary and scientific institutions, as three gymnasia, an academy of science, &c. The manufactures of Prague are not very important; they are linen, cotton, silk, hats, &c.; and government has here a great manufactory of arms, and tobacco works. It is the centre of the Bohemian commerce, and of a considerable transit trade. Of the thirty great commercial houses, nearly half are Jewish. The general appearance of the city is poor; the lower classes are in a miserable condition. Prague is the birthplace of Jerome (q. v.), the disciple of Huss. (q. v.) In the fifteenth century, it was troubled by the persecutions of the Hussites. In 1620, the elector palatine, who had been elected king of Bohemia by the nation, was defeated by the emperor in the battle on the White mountain (*Weisser Berg*), two miles from the city (see *Bohemia*); and, in 1757, the city was bombarded by Frederic II (the Great) of Prussia.

Prairial. (See *Calendar*, vol. ii, page 403.)

Prairie (a French word, signifying a *meadow*); used in the U. States to designate the remarkable natural meadows, or plains, which are found in the Mississippi Valley. Flint (Geography of the Western States) classes the prairies under three heads:—1. the *heathy*, or *bushy*, which have springs, and are covered with small shrubs, bushes, grape-vines, &c., very common in Indiana, Illinois and Missouri. 2. The *dry*, or *rolling*, generally destitute of water, and almost all vegetation but grass. These are the most common and extensive; the traveller may wander for days in these vast and nearly level plains, without wood or water, and see no object rising above the plane of the horizon. In this kind of prairies roam immense herds of bisons. 3. The *alluvial* or *wet* prairies form the third and smallest division; they are covered with a rich vegetation, and have a black, deep and friable soil, of inexhaustible fertility. They are well adapted for wheat and maize, in the proper climates. In a state of nature, they are covered with tall, rank grass, and, in the rainy season, are frequently overflowed, or contain numerous pools collected in small basins, without outlets, the waters of which therefore pass off solely by evaporation.

Prase. (See *Quartz.*)

Prater; the most famous promenade of Vienna. (See *Vienna.*)

Praxiteles; one of the greatest sculptors of Greece. (See *Sculpture.*) He carried the art to such perfection that a Greek epigram on his Niobe says, "The gods changed me to stone, but Praxiteles restored me to life." Praxiteles and his contemporary Scopas united grandeur with grace; and with them (about 364 B. C.) begins the period of the beautiful style in statuary. The former also worked in bronze, but, according to Pliny, he was most successful in marble. Pliny (*Hist. Nat., lib.* 36, c. 4, 5) gives a list of his principal works, which were statues of the gods. The finest is said to have been the Cnidian Venus, whom he was the first to represent naked. According to tradition, the celebrated courtesans Cratina and Phryne (q. v.) served as models for it. This Venus is represented with a smiling countenance, and in the attitude of having left the bath, or risen from the sea. This statue was frequently copied. His Coan Venus was nude down to the hips. In Böttiger's opinion, the Venus de' Medici resembles the Cnidian Venus only in the position of the left hand; but the Capitoline Venus is considered as a copy of it. (See *Venus.*) The group of Niobe now in existence, which is also attributed to Scopas, seems to have been the production of different times. His two statues of Cupid were also celebrated. One of them, which was placed in the temple of Cupid, at Thespia, and a statue of a satyr, which was called *periboetos* (the far-famed), were considered by Praxiteles, according to Pausanias, as his finest works. An excellent copy of the latter, discovered in a villa of the emperor Antoninus, is in the *Museo Pio-Clementino.* Among his works were also statues of Diana, Ceres, Bacchus, &c., in marble, and in bronze, which served as models to succeeding artists.

Prayer, Attitudes of. The Greeks and Romans, like all other heathen nations, extended their hands when praying, since they prayed to receive. This ancient mode of praying was at first followed by the Christians; but they afterwards changed it, extending the arms in the form of the cross, to represent the crucifixion of the Savior. They were therefore often obliged to have their arms supported for hours, during which their prayers lasted, by their servants. They afterwards crossed their arms, and thus imitated the Oriental expression of submission and humility. It then became the practice to cross the hands, which was finally changed to the present custom of clasping them—an attitude, in ancient times, expressive of the most profound grief and submission. Among many nations (for instance, the modern Greeks), it is customary to turn, in prayer, towards the east, as the region of the holy sepulchre.

Preadamites (from the Latin *præ*, before); those men, or generations, who, according to some, inhabited the earth previously to the Adamitic creation. By some, therefore, it is assumed that Adam was not the first man; and Isaac Peyrer (1655) maintained that the Jews were descended from Adam and Eve, and the Gentiles from the Preadamites. The term *preadamitic* is also applied to the remains of the primitive world.

Prebend; a yearly stipend, paid from the funds of an ecclesiastical establishment, as of a cathedral, or collegiate church.—*Prebendary* is the person who has a prebend. A simple prebend has no more than the revenue which is assigned for its support; but if the prebend has a jurisdiction annexed, the prebendary is styled a *dignitary.* Prebendaries, as such, have no cure of souls; and therefore a prebend and a parochial benefice are not incompatible promotions.—The *prebendal stall* is the seat of the prebendary in the church, into which he is inducted by the dean and chapter.

Preble, Edward, commodore of the American navy, was born, Aug. 15, 1761, in that part of Falmouth in Casco bay which is now Portland, in Maine. From early childhood, he discovered a strong disposition for perils and adventures, and a firm, resolute and persevering temper. His first voyage was to Europe in a letter of marque, captain Frend. About the year 1779, he became midshipman in the state ship Protector, twenty-six guns, captain John Foster Williams, which, in her first cruise, captured the Admiral Duff, an English letter of marque of thirty-six guns, but, in her second, fell in with a British sloop and frigate, and was taken. The principal officers were carried to England; but Preble, by the interest of a friend of his father, obtained his release at New York, and returned to his friends. He next entered as first lieutenant on board the sloop of war Winthrop, captain Little, and, while in that capacity, boarded and cut out an English armed brig, of superior force, lying in Penobscot harbor, under circumstances which gave the action great *éclat*. He remained in the Winthrop until the peace of 1783, and, between that period and the commencement of the French war, in 1798, occupied himself mostly as ship-master in various voyages. In the latter year, he was named one of the five lieutenants that were first appointed by the government of the U. States, when making preparations to resist the insults and injuries of the rulers of France. In the autumn and winter of 1798—9, he made two cruises as commandant of the brig Pickering. The next year he received a captain's commission, and the command of the frigate Essex, of thirty-six guns. In January, 1800, he made a voyage in her to Batavia, whither he was sent with captain James Sever, in the Congress, to convoy our homeward-bound vessels from India and the East. The day after leaving port, a snow storm came on, and they parted from the three vessels under convoy out. On the 12th, in a heavy gale, he lost sight of the Congress, which was unfortunately dismasted, and obliged to put back. The Essex pursued the voyage alone, and, after waiting a suitable time at the cape of Good Hope for the Congress, proceeded to Batavia. Before and after arriving at Batavia, captain Preble made two cruises, of a fortnight each, in the bay of Sunda. In June, he took under convoy home fourteen sail of American merchantmen, valued at several millions of dollars, and protected them until they were out of danger. Near the end of the year, he arrived at New York, in a very delicate state of health; and he continued so feeble as to be prevented from assuming the command of the Adams for the Mediterranean, to which he was appointed. In 1803, he was sufficiently recovered to enter again upon duty, and, in May of that year, was directed to take command of the frigate Constitution, then lying at Boston, and get her ready for sea. In June, he received orders to take charge of the squadron destined to act in the Mediterranean as soon as it should be prepared. In August, he set sail, and reached the Mediterranean the ensuing month. In that station, by a happy union of prudence and energy, he first prevented a war between the emperor of Morocco and the U. States, and next brought the bashaw of Tripoli to terms, by a series of skilful and daring bombardments. Having been joined by another squadron, under the command of commodore Barron, his senior officer, he obtained leave to return home. On his departure, he received an address from the officers who had served under him, containing the strongest expressions of attachment and respect. Congress voted the thanks of the nation to him, and an emblematical medal, which were presented by the president with emphatic declarations of esteem. After his return, he was much consulted, and employed by the government in the management of the naval concerns. In the latter part of the year 1806, the health of commodore Preble began to decline. He was attacked with the same complaint—a debility of the digestive organs—under which he was near sinking a few years before. For many months, he struggled with the disorder, indulging a hope of recovery till within ten days of his death. Finding that he received no relief from medical skill, he determined upon trying the effects of a voyage, and embarked in a packet, but soon returned in the certitude that his end was near. He breathed his last Aug. 25, 1807, in the forty-seventh year of his age. The appearance of commodore Preble was commanding; his features were strongly marked, and his carriage firm and erect. In the exercise of authority, he was peremptory and rigid; but, though he made himself feared, and sometimes failed in restraining the impetuosity of his temper, he always retained a strong interest in the affections of his officers and men. In private life, he was kind and affectionate; a fond relation and a kind neighbor. His public spirit was great. He was patient of labor, and in business was remarkable for exactness and despatch.

Precession of the Equinoxes is a very slow motion of them, by which they change their place, going from east to west, or backward, *in antecedentia*, as astronomers call it, or contrary to the order of the signs. The pole, the solstices, the equinoxes, and all the other points of the ecliptic, have a retrograde motion, and are constantly moving from east to west, or from Aries towards Pisces, &c., by means of which the equinoctial points are carried farther and farther back among the preceding signs of stars, at the rate of about 50¼″ each year, which retrograde motion is called the *precession*, *recession*, or *retrocession of the equinoxes*. Hence, as the stars remain immovable, and the equinoxes go backward, the stars will seem to move more and more eastward with respect to them; for which reason the longitudes of all the stars, being reckoned from the first point of Aries, or the vernal equinox, are continually increasing. From this cause it is that the constellations seem all to have changed the places assigned to them by the ancient astronomers. In the time of Hipparchus and the oldest astronomers, the equinoctial points were fixed to the first stars of Aries and Libra; but the signs do not now answer to the same points; and the stars, which were then in conjunction with the sun when he was in the equinox, are now a whole sign, or 30 degrees, to the eastward of it; so the first star of Aries is now in the portion of the ecliptic called Taurus; and the stars of Taurus are now in Gemini, and those of Gemini in Cancer, and so on. Hence, likewise, the stars which rose or set at any particular season of the year in the times of Eudoxus, Hesiod, Virgil, Pliny, &c., by no means answer, at this time, their descriptions. This seeming change of place in the stars was first observed by Hipparchus of Rhodes, who, 128 years B. C., found that the longitudes of the stars in his time were greater than they had been before observed by Timochares, and than they were in the sphere of Eudoxus, who wrote 380 years B. C. Ptolemy also perceived the gradual change in the longitudes of the stars; but he stated the quantity at too little, making it but 1° in 100 years, which is at the rate of only 36″ per year. Y-hang, a Chinese, in the year 721, stated the quantity of this change at 1° in 83 years, which is at the rate of 43¼″ per year. Other more modern astronomers have made this precession still more, but with some small differences from each other; and it is now usually taken at 50¼″ per year. All these rates are deduced from a comparison of the longitude of certain stars, as observed by more ancient astronomers, with the later observations of the same stars, namely, by subtracting the former from the latter, and dividing the remainder by the number of years in the interval between the dates of the observations: thus, by a medium of a great number of comparisons, the quantity of the annual change has been fixed at 50¼″, according to which rate it will require 25,791 years for the equinoxes to make their revolutions westward quite around the circle, and return to the same point again. The explanation of the physical cause of this slow change in the position of the equinoxes, or the intersections of the equinoctial with the ecliptic, is one of the most difficult problems of physical astronomy, which even Newton attempted in vain to solve in a perfectly satisfactory manner. Later mathematicians, however, as D'Alembert, Euler, Simpson, Laplace, have succeeded in it. Our limits will only allow us to say, in general, that this phenomenon is owing to the spheroidal figure of the earth, which itself arises from the earth's rotation on its axis; for, as more matter has thus been accumulated all round the equatorial parts than any where else on the earth, the sun and moon, when on either side of the equator, by attracting this redundant matter, bring the equator sooner under them, in every return towards it, than if there was no such accumulation. This subject is treated clearly and fully in the 22d book of Lalande's *Astronomy* (3d ed., Paris, 1792); see, also, D'Alembert's *Récherches sur la Précession des Équinoxes* (Paris, 1749, 4to.); and Ferguson's *Astronomy* (Brewster's edition, Edinburgh, 1821).

Precious Stones. (See *Gems.*)

Precipitation. (See *Cohesion.*)

Predestination. (See *Grace*, and *Calvin.*)

Prefectures. Among the problems of the modern policy of Europe, there is, perhaps, none more important than the combination which should take place in the administration of the affairs of towns and districts, between the general government and the local authorities. In the countries of Germany, the care of certain public matters, which formerly belonged to the communities in their general assemblies, under the superintendence of their bailiffs, counts and princes, was, at an early period, transferred to the sovereign and to the stewards of the princes; and only here and there have any traces been preserved of an older constitution, which certainly once existed in all the Germanic kingdoms, but has nowhere remained to a considerable extent except in England. For all that relates to the preservation of public order and peace, the care of roads, and other public institutions, schools, poor rates, prisons, &c., the parliament is there the supreme authority, which must determine the general principles on which they are conducted, and must authorize the particular establishments that may be proposed. In the counties, the sheriff, as the king's officer, is only the guardian and administrator of the public authority, the executioner of the royal commands and judicial sentences, with power to call out the *posse comitatus.* (q. v.) The administration, on the contrary, is vested chiefly in the justices of the peace, who may be considered as a deputation of the principal persons of each county, and it is controlled by the grand jury, which assembles at each court of assizes. (See *Assizes.*) Connected with this independence of the counties is the right of the people to assemble in order to express their views, wishes and grievances. (See *Petition.*) This is secured and completed by the liberty of the press. In the states of the continent, the separate districts have ceased to govern themselves, and have come under the control of officers appointed by the general government; and in most of the German countries, colleges of counsellors have become common since the sixteenth century. In France, a similar course of things has taken place; in some of the provinces, indeed, the constitution of the estates was retained, and in others local officers (*élus*) were established to superintend the taxation; but the estates in the *pays d'états* were by degrees much restricted, and the *élus* reduced to mere royal officers. Most of the subjects of country police were transferred to the superior bailiwics, royal officers and parliament; but, as the *conseils du roi* were more and more developed, not only did it become the common course of things to prefer petitions to them, but *maîtres des requêtes* were annually sent through the provinces to examine the administration of them in all its branches, including military, judiciary, financial and police affairs. Henry II established them, in 1551, as perpetual overseers in all the provinces, and, under Louis XIII, in 1635, they received the name of *intendants.* Their official powers were more and more enlarged. They were bound to unconditional obedience to the ministers, and could be recalled at any time. To their functions belonged the proportional assessment of taxes, the levying of soldiers, and their removal, the procuring of supplies for the army and the royal magazines, the keeping of roads, bridges and public edifices in repair, the care of the common concerns of the districts, the regulation of the trade in corn from one province to another, &c. It was often suggested to introduce, instead of these men, invested with such arbitrary powers, a collegial administration, a part of whose members, at least, should be chosen by the provinces themselves. But this was never done; and thus the office of intendants remained till the revolution, and the abuses of their authority contributed not a little to produce this catastrophe. It was therefore one of the first doings of the national convention to abolish these offices, and, instead of them, to erect in each department a general administration, whose members were chosen by the citizens. A directory of the department was permanent: a council, on the other hand, was to meet every year, to fix the expenditures of the department, to audit accounts, and to exercise a degree of legislative power over the affairs of the department. A similar regulation was introduced in the districts and single towns. But, by this organization, the power of the government was much weakened, and the authorities of the departments often came forward in open opposition to the ministry. It was, therefore, one of the first operations of Napoleon, who cannot be denied to have possessed an extraordinary sagacity in all that pertains to the mechanism of government, to restore the intendants, not, however, under this odious name, but under the appellation of *prefects.* This was accomplished by the law of Feb. 17, 1800 (28 Pluv., year VIII), by which there was established for each department a prefect (to be appointed and dismissed at pleasure by the first consul), a council of the prefecture, consisting of 3—5 members, and a general council of the department. The last, also, appointed by the first consul, was to assemble once a year to distribute the quota of the departmental taxes among the districts (*arrondissemens,* or under-prefectures), to fix the expenses of the department, to decide on remonstrances respecting excessive taxation, and to audit the accounts of the prefects respecting the departmental treasury. But it seems that these *conseils généraux de département,* as well as the *conseils d'arrondissement,* were tacitly suffered to fall into disuse. The prefects are intrusted with the whole organization and management of the police establishments; but the punishment of offences against the police regulations belongs to particular courts not under their control. Within this sphere of action, the prefects are unchecked: the sub-prefects, who stand at the head of the districts, are entirely subject to their commands; and the authorities of the communities, as well as the justices of the peace, can set no limits to their activity. The courts have no cognizance of any matter which has already been decided by an act of prefecture (*arrêté* of the prefects, or council of the prefecture), even though the officers may have exceeded their powers, until that act has been avoided by the competent authorities. By means of the prefects, the ministry can exert a great influence, not merely on public, but also on private affairs. Under Napoleon, the prefects had to make reports of the rich heiresses of their departments, in order to afford an opportunity to the favorites of government to address them. Legraverend (*Des Lacunes de la Législation Française*) has disclosed a number of abuses, by which the prefects invaded the private property and domestic relations of the citizens. How the administration of penal justice, the elections, &c., were managed by them according to the purposes of the ministers, is notorious. The power of the prefects, however, ceases, at least by law, as soon as a legal contest arises respecting a subject of administration; for he must refer such cases to the court appointed for the purpose, the council of the prefectures, of which he is the president, but in which he has only a casting vote. Under the cognizance of this court fall all disputes respecting the taxation of particular individuals, respecting contracts for supplies, engagements with the state for building, the indemnification of those who have had to give up any thing to the public, or have been injured by the contractors for public buildings, together with injuries sustained in war, contests respecting any of the public domains, &c. The appeals against its decisions (*arrêtés*) lie to the council of state. Against the decision of the ministers, also, in contested matters of administration, complaints must be submitted to the council of state; but in matters not disputed, memorials alone against the prefects can be laid before the ministers, and complaints against the ministers must be addressed immediately to the king. The nature and extent of the power of the prefectures, and the destruction of freedom and independence in the administration of the townships, all parties in France agree in censuring. But how arbitrary power and partiality may be banished from the administration of the prefects, so as not to deprive the government of its requisite energy, and in what way communities may be reinvested with self-government, are questions respecting which the greatest diversity of opinion prevails.

PREGNANCY; the state of a female who is with child. Pregnancy begins at the moment of conception, and ceases with that of birth. During pregnancy, the vital activity, especially of the womb, which probably receives, a few days after conception, the fecundated vesicle, increases. The periodical discharge of blood ceases, but the vessels of the womb become enlarged, more charged with blood, longer and straighter. Its cellular substance becomes softer, and more spongy, the sides thicker, the cavity wider. It loses the pear shape, which it has when not impregnated, and becomes more globular. It sinks during the two first months of pregnancy lower into the pelvis, but afterwards rises, and becomes larger, until, in the eighth month, the bottom of it can be felt externally in the region of the stomach. In the ninth month, it sinks again somewhat. In these changes of the womb, the embryo (q. v.) developes itself, until it has reached, in the fortieth week, a sufficient degree of maturity to be able to live separate from the mother, when the birth takes place, and pregnancy is at an end. But the vital activity is increased in the state of pregnancy not only in the womb, but in the whole body, with healthy and vigorous women. Pregnant women are bolder, more independent, more enterprising, stronger than before, and retain these qualities when they are mothers. They are more rarely affected by contagious diseases; consumption is checked during pregnancy, but makes the more rapid progress after its completion. Hysteric women feel often uncommonly well during this period; the gouty are freed from their attacks; some become uncommonly fat. On the other hand, this state is, with many, particularly with feeble, sickly, delicate, too young or too old women, often accompanied by a great many complaints, which depend upon the altered state of the systems of the vessels and nerves. The stomach particularly often suffers; hence nausea, vomiting, a morbid loathing of, or craving for, particular dishes, which were till then indifferent. Pregnant women often suffer, also, by wandering pains, particularly in the teeth, and by coughing. Much inclination exists in the body to inflammation and a heated state of the blood; the veins of the feet and the posteriors are swelled. The mechanical pressure of the womb, thus changed in situation and form, not unfrequently causes irregularities in the discharges of the urine and excrements. All these changes serve as signs of pregnancy. Other signs are the gradual and regular changes observed at the opening of the womb by internal examination; also the state of the breasts, which become larger during pregnancy, and in which a milky substance collects, but particularly the change of color round the nipple; lastly, the motion of the child felt by the mother in the second half of the period of pregnancy, and the perception of different parts of the fœtus by external and internal examination. It is very important to determine the fact of pregnancy at an early stage; but it is very difficult, in some cases, particularly in the first half of the period, because there are a number of diseases of the abdomen which are attended with similar symptoms. Pregnancy itself is subject to a number of deviations from the ordinary course. The rules laid down to prevent injury to the embryo, and to preserve the health of the mother, have reference principally to air, nourishment and exercise; to the natural desires and preternatural longings (the latter must be gratified with much caution); to the passions, which must be carefully restrained; to the imagination, because the whole nervous system may easily become over-excited; to the proper allowance of sleep, and the disposition of the dress, which must not press either the abdomen or the breast. All injuries from over-exertion or mechanical causes are to be carefully avoided, as falls, lifting, blows, &c., because they may easily occasion abortions. During pregnancy, care ought also to be taken that the breasts are fit, after the birth of the child, to nourish it. It is a mistaken idea that abortions take place much more frequently among the higher classes: the poorer classes in populous cities are quite as liable to them. In the country, where a purer air keeps the body altogether in a more vigorous state, abortions occur less frequently. The advice of experienced female friends, during the whole period of pregnancy, is, of course, of the greatest value; yet, in almost all countries, certain prejudices exist respecting this important state in a female's life, and the advice of a physician cannot be dispensed with. The internal examinations mentioned above are comparatively rare in England and the U. States; but, in France, Germany and Italy, if not throughout the European continent, they belong to the regular course of medical attendance in the state of pregnancy.

Prehnite; a mineral first discovered by colonel Prehn, at the cape of Good Hope, to whom it owes its name. It sometimes occurs in oblique rhombic prisms, its primary form, but more generally in irregular eight-sided tables and low six-sided prisms. Prehnite, however, is found, for the most part, in botryoidal concretions, of the size of a pea, and larger, made up of delicate fibres; its color is some shade of yellow or green; it is translucent, shining, and hard enough to scratch glass; specific gravity 2.8 to 3; it melts with intumescence into a pale green or yellow glass, and consists of silex 43.83, alumine 30.33, lime 18.33, oxide of iron 5.66, and water 1.83; it belongs to trap rocks and sienite, in which it is found in the form of veins and geodes. It is found in various parts of the world, and comes, in particular, in very fine pieces, from Scotland. In the U. States, it occurs abundantly in several towns in Connecticut, but is found in the greatest perfection at Farmington.

Prelate; in the Roman Catholic church, those spiritual officers who exercise jurisdiction in their own name. These were, originally, only the bishops, archbishops, patriarchs, and the pope. The cardinals and legates, abbots and priors, also obtained certain privileges of jurisdiction by grant or prescription. In the German empire, previous to the secularisations of 1803, a number of high ecclesiastics, who held immediately of the emperor, had also a secular jurisdiction, and several had the princely dignity, with a seat and voice in the diets. (See *Elector*, and *German Empire*.) The term *prelates* is often used merely to signify the higher dignitaries of the church.

Premises. (See *Syllogism*.)

Premium. (See *Bounty*.)

Premonstratenses; a religious order, founded in the French bishopric of Laon, by Norbert, a canon of Xanten in Cleves, who, by the austerity and zeal which he manifested as archbishop of Magdeburg (in 1127), acquired the honor of canonization. In the forest of Coucy, in a meadow pointed out to him, as he said, by Heaven (*pré montré*, *pratum monstratum*; thence the name of the order), he collected his first disciples (1120), and gave them the rule of St. Augustine with some additional rigor. The Premonstratenses, therefore, consider themselves as regular canons, though, by their constitution, they are actually monks. Their order increased rapidly; several nunneries were established with the same rigid rules; at first (as was the case with that of Fontevraud) in the neighborhood of the monasteries, from whose revenues they were supported, but subsequently at a distance from them, to avoid the dangers of intercommunication. The abbot of the original monastery Prémontré, near Coucy, was general, and, with three other abbots, formed the great council of the fathers of the order. The order was introduced into England in 1146, and its members were there regularly known as the White Canons. Before the reformation, they had 2000 monasteries, among which were 500 nunneries, mostly in Germany, the Netherlands, France, England, and the north of Europe; but the reformation diminished this number, by more than one half, in the sixteenth century. The monasteries in Spain attempted to revive their discipline in 1573, by uniting in a strict observance of their rules; but they remained in communion with those of the common observance. In 1630, this communion of all the monasteries, of both kinds, was confirmed by new statutes. In the eighteenth century, the order had no houses in Italy; in France, it had forty-two monasteries; the nunneries had all disappeared. It now consists of a few houses in Spain, Poland and the Austrian states, especially in Bohemia, where it has at Prague one of its handsomest and richest monasteries.

Preposition (from *præpositus*, placed before); a part of speech, which is used to show the relation of one object to another, and derives its name from its being usually placed before the word which expresses the object of the relation. In some languages, this relation is often expressed by changes of the termination (cases), without the use of a preposition.

Prerogative Court. (See *Court*, division *Ecclesiastical Courts*.)

Prerogatives of the King of England. (See *Great Britain*.)

Presburg (*Posonium*; in Hungarian, *Posony*; in Sclavonic, *Pressburek*); a city of Hungary, capital of a palatinate of the same name, on the left bank of the Danube, which here divides into several branches, and is crossed by a flying bridge; lat. 48° 8′ N.; lon. 17° 6′ E. It is built on a hill overlooking a wide plain; the walls, which formerly separated it from the suburbs, have been demolished; the streets are narrow, steep, and only in part paved. The handsomest streets and squares are in the suburbs. The cathedral dedicated to St. Martin is a large building in the Gothic style; in the chapel of St. John, belonging to it, the coronation of the kings of Hungary formerly took place. The castle, which served as a barrack, was burnt down at the beginning of the present century, but its walls are standing. Presburg contains seven monasteries, fourteen churches (of which twelve are Catholic), one synagogue, several hospitals, and some literary institutions. Population 32,026, of which 25,000 are Catholics, 5000 Lutherans, and 2000 Jews. The transit trade is considerable, and there are some manufactures. Presburg was the capital of Hungary until Joseph II made Buda the capital. The peace of Presburg (concluded Dec. 16, 1805, between Francis, emperor of Germany, and Napoleon) was the immediate consequence of the battle of Austerlitz. (See *Austria*, and *Austerlitz*.) The German emperor ceded the part of the territory of Venice acquired by the peace of Luneville (q. v.) to the kingdom of Italy; acknowledged the regal dignity and sovereignty of the electors of Bavaria and Würtemberg, and the sovereignty of the elector of Baden; ceded Tyrol, Vorarlberg, and some districts, to Bavaria; the greater part of the Brisgau, with Constance, to Baden; and the towns on the Danube, and some other portions of the Suabian possessions of Austria, to Würtemberg. For these cessions, Austria received some indemnification. (See *Confederation of the Rhine*; and consult Schöll's *Histoire des Traités de Paix*, 7th vol.)

Presbyterians (from the Scripture term πρεσβυτερος, elder); those Christians who maintain that there is no order in the church superior to that of presbyters or elders, affirming the terms πρεσβυτερος (elder) and ἐπισκοπος (bishop) to be of precisely the same import. The Presbyterians believe that the authority of their ministers to preach the gospel, and to administer the sacraments of baptism and the Lord's supper, is derived from the Holy Ghost by the imposition of the hands of the presbytery (assembly of presbyters); and accordingly they oppose the scheme of the Independent or Congregational churches, with the same argument which the Episcopalians use, while they differ from these latter in not admitting any inequality of rank among the ministers of the church. The established church of Scotland is Presbyterian; this mode of ecclesiastical government having been introduced thither from Geneva, by John Knox, the celebrated Scotch reformer. (See *Knox*, and *Scotland*.) The doctrines of the church are Calvinistic, the Westminster confession of faith being the standard of the national creed, which all ministers are required to subscribe. There are four ecclesiastical judicatories, viz. the kirk session, composed of the minister of the parish and a number of the most respectable laymen; the presbytery, composed of the ministers of a certain district, with an elder from each parish; the synod, consisting of the ministers and elders of a certain number of presbyteries; and the general assembly, composed of representatives of the presbyteries (200 ministers and 156 elders), and of the universities. This is the supreme ecclesiastical tribunal, and meets once a year. The Presbyterian church in the U. States does not materially differ from that of Scotland. The first presbytery was organized in this country in 1704, by the association of several ministers who had received Presbyterian ordination in Europe, and who agreed to govern themselves agreeably to the Westminster confession of faith (see *Creed*), form of government, book of discipline, and directory for worship. The presbyteries subsequently formed have been organized by act of this presbytery, or some superior judicatory, such as a synod or general assembly. In the middle of the last century, the Presbyterian church was divided, by a schism, into the synod of New York, or the New Lights, and the synod of Philadelphia; but, in 1758, the two bodies met, and reunited themselves into one synod, entitled the Synod of New York and Philadelphia. The first general assembly met in 1789, and, in 1831, it comprehended 2253 churches, 1801 ministers, 182,017 communicants, embracing a population of 1,800,000 souls. The number of synods, in 1830, was nineteen; that of presbyteries, ninety-eight. The theological seminaries, under the care of the general assembly, are three, at Princeton (New Jersey), Alleghanytown (Pennsylvania), and Prince Edward county (Virginia), besides several synodical seminaries.

. **Prescott**, Oliver, was born at Groton in the state of Massachusetts, April 27, 1731, of a highly respectable English family. He was graduated at Harvard college, in 1750, and commenced the practice of medicine, after a due course of study. The condition of the times, however, did not allow him to prosecute his professional duties uninterruptedly. He engaged actively in public life, and received from the government many appointments and commissions. In the militia he was successively made, by the king, a major, lieutenant-colonel, and colonel. On the breaking out of the revolution, he took a decided part in favor of liberty, and, in 1776, was appointed, by the supreme executive council of Massachusetts, brigadier-general of the militia for the county of Middlesex—a post the duties of which, joined to his care in aiding to organize the town committees of correspondence in that part of the country in which he lived, rendered his situation one of great labor. In 1776, he was chosen a member of the board of war. In 1777, he was elected a member of the supreme executive council of the state, and after serving in that capacity for three years, declined a re-election. In 1778, he was appointed the third major-general of the militia throughout the commonwealth. In 1779, he was made judge of probate of wills, &c., for the county of Middlesex, and retained the office until his death, giving universal satisfaction by his urbanity and the able and correct manner in which he discharged his duties. In 1781, he was named the second major-general of the militia, but he soon tendered his resignation. In the same year, he received a testimonial of the confidence reposed in his character by the government, by receiving from it a commission "to cause to be apprehended, and committed to gaol, any person whom you shall deem the safety of the commonwealth requires to be restrained of his personal liberty, or whose enlargement within the commonwealth is dangerous thereto." Doctor Prescott also held several municipal offices, and took an active part in the public business of his town. He died at Groton, Nov. 17, 1804, in the seventy-fourth year of his age. Doctor Prescott was distinguished for activity, colloquial talents, and politeness of manners. As much time as he could spare from his public occupations, he devoted to his professional duties, and, for nearly half a century, was one of the most popular physicians of the commonwealth. He possessed the singular faculty of sleeping on horseback.

Prescott, William, a distinguished revolutionary officer, was born in 1726, at Goshen, in Massachusetts. At the capture of Cape Breton, in 1758, he was a lieutenant of the provincial troops, and attracted, by his conduct in that campaign, the notice of the British general, who offered him a commission in the regular army, which, however, he declined. In 1774, when the struggle between the colonies and the mother country was at hand, he was appointed to command a regiment of minute men, organized by the provincial congress, and, on receiving notice of the intended operations of general Gage against Concord, marched with it to Lexington. Before he arrived, however, the British had retreated, and he then proceeded to Cambridge, where he entered the army that was ordered to be raised, the greater part of his officers and men volunteering to serve with him for the first campaign. On the 16th of June, 1775, he was ordered to Charlestown with three regiments, and directed to throw up works on Bunker hill. On reaching the ground, it was perceived that the neighboring elevation, called *Breed's hill*, was a more suitable station; and on it the defences were erected. The next day, as is well known, general Howe, with a force more than quadruple that under the orders of colonel Prescott, attempted to dislodge him, and, after a contest among the most memorable in the American annals, succeeded in effecting that object with immense loss. Colonel Prescott was one of the last to leave the intrenchments when he found it necessary to order a retreat, and he offered to the commander-in-chief to retake the position the same night, if he would give him two regiments. In 1777, he resigned his command, and returned home; but in the autumn of the same year, he went as a volunteer to the northern army under general Gates, and was present at the capture of Burgoyne. This was his last military service. He subsequently sat in the legislature of his native state for several years. He died in 1795, in his seventieth year, highly esteemed as an energetic, brave, and patriotic citizen.

Prescription is a right or title acquired by use and time, as when a man can show no other title to what he claims, than that he, and those under whom he claims, have immemorially used to enjoy it. The object of prescription is to secure the title to property to him who has had the possession of it for the term fixed by the law, and to prevent any one from disturbing his possession after such term has expired. The law of prescription is not intended to punish the indolence of proprietors; it only interprets their silence as consent, presuming that a man who neglects to assert his right for a long series of years, gives it up. Many celebrated authors, as Grotius, Puffendorff and Wolfius, have maintained that the law of prescription is derived from the law of nature. It forms a part of the law of nations. By the civil law, things movable become subject to prescription, after the expiration of three years, and a possession during ten years, if the parties are present (that is, in the province), and twenty years if they are absent, will also found a prescription to things immovable, if the possession was honestly obtained at first. (*Just. Inst.* lib. ii, tit. 6). Where the possession was *malâ fide*, a prescription of thirty years is necessary to confer a title. In the code of Napoleon, the provisions in regard to prescription to things immovable are similar. In some Roman Catholic countries, prescription does not avail against the church, if short of a hundred years. In the English law, the term *prescription* is applied only to incorporeal hereditaments, as a right of way, a common, &c. A prescription is distinguished from a custom by this, that custom is properly a local usage, and not annexed to a person, such as a custom in a manor, that land shall descend to the youngest son; but prescription is merely a personal usage; as that Sempronius and his ancestors, or those whose estate he hath, have used, time out of mind, to have common of pasture in such a close; for this is a usage annexed to the person of the owner of this estate. By the law of England, a prescription must have existed from time whereof the memory of man is not to the contrary, which is to be understood, not merely of living memory, but of memory by means of records or other written memorials; and, therefore, where there is any proof of the original or commencement of any thing, it cannot be claimed by prescription; unless, indeed, the commencement were before the reign of Richard I, for then it is considered to have existed immemorially, on an equitable construction of the statute of Westminster, 1, which limited that time for a writ of right. (*Starkie on Evid.*, 1204.) In the U. States, it has been made a question, whether there can be a prescription, as the settlement of the country was within the time of memory by the English law; and it has been held that there could be no prescription in this country, in some of the states. In Massachusetts, it has been held, that the time of prescription does not extend further back than sixty years, and that it is questionable whether it extended back further than forty years. (8 *Pick.* 504.)

President; the supreme executive officer of the U. States. The qualifications, powers, and mode of election, of this officer are settled by article II of the Constitution, the first section of which was amended in 1804. (For qualifications and mode of election, see *Election*; see also article *Constitutions.*) By section 1st of that article, it is provided, "that in case of the removal of the president from office, or of his death, resignation or disability to discharge the powers and duties of his office, the same shall devolve on the vice-president; and the congress may by law provide for the case of removal, death, resignation or inability both of the president and vice-president, by declaring what officer shall then act as president, and such officer shall act until the disability be removed or a president be elected." In pursuance of this provision, the act of congress of March 1, 1792, sec. 9, declares, that in such case of vacancy, the president of the senate *pro tem.*, and if there be none, the speaker of the house of representatives, shall act until the vacancy is supplied. The president holds his office for four years, and it is provided by law (act of congress, March 1, 1792), that the term for which the president and vice-president shall be elected, shall begin on the fourth day of March next succeeding the day of election. The first section of Article II of the constitution also provides, that "the president shall, at stated times, receive for his services a compensation which shall neither be increased nor diminished during the period for which he shall have been elected, and he shall not receive within that period any other emolument from the U. States, or any of them." Before entering on the execution of his office, he is required to take the following oath or affirmation: "I do solemnly swear (or affirm) that I will faithfully execute the office of president of the U. States, and will, to the best of my ability, preserve, protect and defend the constitution of the U. States." The powers of the president are fixed by section 2 of Article III, in the following terms: "The president shall be commander-in-chief of the army and navy of the U. States, and of the militia of the several states when called into the actual service of the U. States; he may require the opinion, in writing, of the principal officer in each of the executive departments, upon any subject relating to the duties of their respective offices, and he shall have power to grant reprieves and pardons for offences against the U. States, except in cases of impeachment. He shall have power, by and with the consent of the senate, to make treaties, provided two thirds of the senators present concur; and he shall nominate, and, by and with the advice and consent of the senate, shall appoint ambassadors, other public ministers and consuls, judges of the supreme court, and all other officers of the U. States, whose appointments are not herein otherwise provided for, and which shall be established by law; but the congress may by law vest the appointment of such inferior officers, as they think proper, in the president alone, in the courts of law, or in the heads of departments. The president shall have power to fill up all vacancies that may happen during the recess of the senate, by granting commissions, which shall expire at the end of their next session." Section 7 of Article I requires that "every bill, which shall have passed the house of representatives and the senate, shall, before it become a law, be presented to the president of the U. States if he approve, he shall sign it; but if not, he shall return it, with his objections, to that house in which it shall have originated, who shall enter the objections at large on the journal, and proceed to reconsider it. If, after such reconsideration, two thirds of that house shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be reconsidered, and, if approved by two thirds of that house, it shall become a law. If any bill shall not be returned by the president within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law, in like manner as if he had signed it, unless the congress by their adjournment prevent its return, in which case it shall not be a law." The same provision is extended to every order, resolution or vote, to which the concurrence of the senate and house of representatives may be necessary (except on question of adjournment). The duties of the president are determined by Article II, section 3. "He shall, from time to time, give to the congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may, on extraordinary occasions, convene both houses, or either of them, and in case of disagreement between them, with respect to the time of adjournment, he may adjourn them to such time as he shall think proper; he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully executed, and shall commission all the officers of the U. States." Art. II, section 4, provides that "the president, vice-president, and all civil officers of the U. States, shall be removed from office on impeachment for, and conviction of, treason, bribery, or other high crimes and misdemeanors." The senate has the sole power to try impeachments; but it is required by section 3 of Article I, that when the president of the U. States is tried, the chief justice shall preside. (See *United States*, and *Congress of the United States*.) By the apportionment of representatives under the census of 1820, the number of presidential electors was 261 in 24 electoral colleges.

Press, Correction of the. (See *Correction of the Press*.)

Press, Laws of. (See next article.)

Press, Liberty of the; the liberty of every citizen to print whatever he chooses, which at the same time does not prevent his being amenable to justice for the abuse of this liberty. To make the liberty of the press real, two things are essential; 1. that the laws against its licentiousness should be precise and clear; 2. that they should only punish what is really injurious to the public welfare. The laws against treason under Tiberius, against heresy under the inquisition, against irreverence under Catharine II, against conspiracy under the convention, against infringements of the royal dignity, and contempt of government, in various states, are very indefinite, and allow the greatest tyranny. The laws for punishing abuses of the press are generally directed against attacks upon the government or its officers, upon the reputation of individuals, and upon good morals and religion. The latitude allowed to the press of course will vary with circumstances. A discussion will be permitted in Prussia which would be punished in Austria. Discussions of certain religious topics are considered in one age blasphemous, while another age esteems them innocent. As to charges affecting the character of governments and individuals, we may observe that the freer a government is, the less sensitive it is, and the less sensitive are the people who live under it. No people are so indifferent to being publicly spoken of as the Americans and English, whilst the Prussian code contains many laws against verbal offences. (See *Injuria*.) As the liberty of speech is unquestioned, and printing only gives permanence and circulation to what might be freely spoken (newspapers, for instance, take the place of speeches and conversations in the forums of the petty states of antiquity), the right of printing rests on the same abstract grounds as the right of speech; and it might seem strange to a man unacquainted with history, that printing should be subjected to a previous censorship (q. v.), as it is in most states, any more than speaking, and that the liberty of the press should be expressly provided for in the constitutions of most free states. But when we look to history, we find the origin of this, as of many other legislative anomalies, in periods when politics, religion and individual rights were confusedly intermingled. It is only since men's views of the just limits of government have become clearer, that the liberty of the press has been recognised as a right; and to England we are particularly indebted for the establishment of this principle, as of so many other bulwarks of freedom, though the Netherlands preceded her in the actual enjoyment of the liberty of the press. When we consider the practical effect of the censorship, it is no more defensible on that ground than on the ground of abstract right. In what times and countries have morals and religion, and the reputation of individuals, been more outrageously attacked through the press, than in those in which the censorship was established? We are far from considering the liberty of the press as without evil consequences; but the censorship does not prevent these consequences, while it destroys the numberless benefits of an unshackled press. But the liberty of the press, properly considered, is not to be treated as a mere question of political expediency. Liberty of conscience and liberty of thought are rights superior in importance to any objects which fall under the head of expediency. Representative governments are empty forms without the liberty of the press. The free discussion of all political measures, and of the character of public officers, is of much more consequence than the freedom of debate in legislative assemblies. A parliament would be a comparatively small check upon a government, were it not for the liberty of the press. In fact, it might easily be made an instrument for enforcing oppressive measures; since a government would find little difficulty in gaining over a majority of such a body by the motives of ambition and avarice, were it not for the control exercised over legislative bodies, by a free press. Without this, publicity of discussion in legislative assemblies would be of little avail. In fact, representative governments, without the liberty of the press, are a mockery. This liberty is, indeed, the great safeguard of all others; and a whole dynasty was lately prostrated in a struggle with this formidable power. Polignac's *Report*, which caused the revolution of

1830, will ever be memorable in the history of the liberty of the press, as proving the difficulty or impossibility of a minister's ruling in opposition to public opinion in a country where the press is free. (For the history of the press, see *Censorship.*) In no country is the liberty of the press so complete as in the U. States; not only as regards the laws, but in respect of public opinion, which is of much more importance. An individual in public office hardly thinks of prosecuting for a libel, however outrageously he may be attacked. If the charge is noticed, it is generally through the same source through which it was made—the press. The freedom with which, even the private and domestic affairs of a candidate for any high office, from the president downwards, are discussed, surprises a foreigner. A law was passed* which made it an offence punishable by fine and imprisonment for any one to write, print, utter or publish any false, scandalous and malicious writings, against the government or either house of congress, or the president (act of July 14, 1798), but it expired by limitation in 1801. In France, "censorship can never again be established," according to the addition made, in 1830, to article seventh of the charter.—In England, the liberty of the press, soon after printing was introduced, was regulated by the king's proclamations, prohibitions, charters of license, &c., and, finally, by the court of star-chamber. The long parliament, after their rupture with Charles I, assumed the same power. The government of Charles II imitated their ordinances, and the press did not really become free till the expiration of the statutes restricting it in 1694, after which it was found impossible to pass new laws in restraint of it, and it has remained free ever since. In the article *Books, Censorship of*, an account is given of the regulations of various countries for restricting printing, and the sale of printed matter. Where the government has the complete control of either, no liberty of the press exists. In other countries, the principal rules for the regulation of the press are, 1. that all presses must have a license; the printers must often give high security for their loyal behavior, and sometimes even take an oath. A license is required both in France and England (in the latter country it is easily obtained; but a late law in France, since the revolution of July, 1830, has required very high security). 2. The name and place of residence of the printer must be mentioned on the title-page. This is the case in England, and on the continent of Europe The printer must keep a list of all that he prints, and some copies must be sent to the government before publication. In France, if a work is found illegal, a criminal process is instituted, and the books are not allowed to be sold until the decision is given. Government need not prosecute immediately, but can at any time. In 1817, there was much debate, whether offences of the press should be judged by the assizes (with a jury), or by the *tribunaux de police correctionnelle* (without a jury). The latter opinion prevailed, but the "special provisions," added in 1830 to the charter, provide for a trial by jury for offences of the press, and political offences. The work *Code des Imprimeurs, Libraires, Écrivains et Artistes, par F. A. Pic* (Paris, 1816, 2 vols.), contains all the French laws of the press, to the date of its publication. In the U. States, there is no restraint upon the liberty of printing. Any man can print and circulate whatever he chooses, and is only answerable if the matter itself is illegal. What publications are punishable in the U. States will depend, in some measure, upon the circumstances of the particular state in which they appear. In the slave-holding states, publications of a tendency to excite commotions among the blacks, of course, are liable to punishment.

Press of Sail signifies as much sail as the then state of the wind, &c., will permit a ship to carry. (See *Navigation*, and *Ship.*)

Press-Gang; the name given in England to a detachment of seamen, who (under the command of a lieutenant) are empowered, in time of war, to take any seafaring men, and oblige them to serve on board the king's ships.

Press, Printing. (See *Printing.*)

Prester John. In the middle ages, it was reported by travellers, that there was a Christian prince who reigned in the interior of Asia, under this name, and the same story was also known to the crusaders. Albert of Aix, and Otho of Freisingen, speak of him in the twelfth century; Rubruquis, in the thirteenth century, attributes the name of *Prester John* to a Nestorian prince, Ungkhan, who had reigned in Caracorum, over two Mongol tribes, and perished in a war against Gengis Khan, about half a century before the time of his journey. (See *Nestorians.*) Other travellers of the thirteenth century also mention this personage, and Giovanni di Montecorvino, bishop of Cambalu, is said to have converted (1305) a prince of his house to Christianity. Who this Prester John was, it is not easy to decide; the supposition that he was the Dalai Lama, or one of the chief priests of the Lamaites, does not agree with the position assigned to his residence by the travellers, nor does any of the etymological explanations, which have been proposed, seem satisfactory. The most ludicrous mistake on this subject was that made by the Portuguese in the fifteenth century, who picked up a story of a Christian prince in the interior of Africa, whose name was Ogan, and who was in fact the negus (king) of Abyssinia. In consequence of the resemblance of the names *Ogan* and *Ungkhan*, they transferred the throne of Prester John from Asia to Africa, and gave the name to the Abyssinian prince.

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* Commonly called the *gag-law*.

Presto (*Italian*); quick, used in music to designate the fifth chief degree of musical motion, quicker than *allegro*. *Presto assai* denotes very quick, and *prestissimo* the highest degree of quickness.

Preston; a borough town in Lancashire, England, on the Ribble, 31 miles from Liverpool. The population, in 1790, was 6000, and had been nearly stationary for a century; but, in 1791, a small muslin manufacture was established there by Mr. Horrocks, which, with some other cotton works, formed by the same individual, soon rendered it one of the most flourishing places in the kingdom. In 1801, the population was 11,887, and in 1821, 24,575. The streets are broad and well paved, and there are churches for almost all denominations of Christians. The town sends two representatives to parliament, who are elected by every male inhabitant, whether housekeeper or lodger, who has resided six months in the town, and has not been chargeable to any township as a pauper for twelve months.*

Preston, Thomas, an English dramatic writer, who flourished in the earlier part of the reign of Elizabeth. He was educated at Cambridge, where he succeeded to a fellowship. He was afterwards created a doctor of civil law, and appointed master of Trinity-hall, over which he presided fourteen years. He wrote one dramatic piece, entitled a Lamentable Tragedy, full of pleasant Mirth, conteyning the Life of Cambises, King of Percia, &c.—a sad tissue of fustian, which escaped not the satire of Shakspeare, who, in Henry IV, makes Falstaff talk of speaking in Cambyses' vein. Preston died in 1598.

Preston, Captain. (See the article *Adams, John.*)

Preston-Pans; a town eight miles east of Edinburgh, where the royal troops under the command of sir John Cope were defeated, in 1745, by the Highlanders, who fought for the Pretender, Charles Edward. (See *Edward, Charles.*)

Pretender. (See *Edward, Charles*; and *Stuart, James Edward Francis.*)

Pretor; the principal Roman magistrate, next after the consul. The administration of justice devolved upon him. This office was established 389 years after the building of the city, because the consuls were too much occupied by the almost uninterrupted series of wars, to attend to that duty. In the year 418, plebeians were admitted to the pretorship. The pretor was chosen in the same manner as the consuls, and was therefore called *collega consulum*. At first there was only one; but as the business increased through the influx of strangers, a second was added, in the year of Rome 510. The duties were divided between them by lot, the one trying causes between citizens (*prætor urbanus*), the other between citizens and foreigners (*prætor peregrinus*). In 527, two additional ones were chosen to administer justice in the provinces of Sicily and Sardinia, which were conquered at that time. In 557, when the Roman dominion was extended over Spain, two more were added, so that the whole number was now six. Sylla increased their number to eight, and Cæsar to ten. Under the emperors their number varied. The distinctions of the pretor were, six lictors who carried the *fasces* before him, the *toga prætexta*, and a *sella curulis*, on which he sat while administering justice. A spear, or, if he was holding a public court, a sword, was placed before him, as the emblem of his judicial character. The principal business of the pretor was the administration of justice. On his entrance into office, he swore to respect the laws, and published an edict, stating the rules according to which he should administer justice for the ensuing year (*edictum, formula prætoris*). He chose from the legal ranks a sufficient number of persons to be judges during his continuance in office. The *prætor urbanus*, who was the first in rank, took the place of the consuls in their absence; he presided in the assemblies of the people, and, in case of emergency, convened the senate. The care of some of the public games also devolved on him, as the Apollinarian, the Circensian and the Megalensian. The office of pretor continued for a year, after the expiration of which he went into the province assigned him, as propretor.

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* Voters of this kind are called *potwallopers*, or *potwallers* (from *wallop*, to boil), a term which includes all persons who *boil their own pot*, or cook their own victuals. Taunton, a borough in Somersetshire, with a population of 8500, likewise returns two members, chosen by the *potwallopers* of the borough.

Pretorians. In the times of the republic, the *cohors prætoria* was a body of troops selected to guard the person of the commander (in old Latin, *prætor*), while in active service. But Augustus established a standing body-guard, consisting of three cohorts, called *pretorians*, which were stationed in the city. This number was afterwards increased to nine, and a body of horse was finally added. Under Tiberius, a fixed station (*castra prætoria*, or *prætoriana*, or *prætorium*) was assigned them. Under the later emperors, particularly from the time of Commodus, they often deposed and murdered the emperors, and raised their favorites, or even (as in the case of Didius Julianus) the highest bidder, to the throne of the Cæsars. Their commander (*præfectus prætorio*) became the most important officer in the state, having, from the beginning of the third century, not only the command of the guards, but the administration of the finances, and an extensive criminal jurisdiction—a natural consequence of the growth of military despotism. The pretorian guards were abolished by Constantine the Great.

Prêtres Insermentés. (See *Priests, Non-juring*.)

Prevesa; a town of Albania, sangiacat of Janina, on the northern side of the gulf of Arta; lat. 39° 5′ N.; lon. 20° 38′ E.; eight and a half leagues from Arta, and not far from the ruins of Actium. In 1684, the brave Venetian admiral Morosini took from the Turks Santa Maura, Prevesa, Butrinto, Parga, Arta, and Voinitza, and thus rendered Venice mistress of the Ambracian gulf. In 1797, these places were ceded to the French republic, and when the latter became involved in a war with Turkey, Ali, pacha of Janina, took Prevesa by storm (1798), pillaged the city, and put to death the greater part of the male population, in violation of express stipulations. By the peace of Luneville, Austria and France formally ceded Prevesa, Parga, Voinitza and Butrinto (Buthrotum) to the Porte. (See *Parga*.) Prevesa again suffered by the rebellion of Ali, whose son threw himself into the citadel, and thus subjected it to a long blockade. In 1825, it also suffered by an earthquake, which did much damage in Santa Maura.

Preville, Pierre Louis Dubus de, a distinguished French actor, born at Paris, in 1721, was designed for the church, but ran away, and, after serving as a journeyman-mason, joined a company of players, and performed at Strasburg, Dijon, Rouen, and finally became manager of a company at Lyons. In 1753, he made his *début* at Paris, at the *théâtre Français*. Armand favored his first appearance at the theatre of Fontainebleau, which decided his reputation. He played five different parts in the *Mercure galant*. Louis XV, who had a good taste, was so struck with his performance, that he ordered him to be received among his own players. Preville's acting was excellent, and he shone not only in humorous parts, but in pathetic scenes. He left the theatre in 1786, but afterwards made his appearance again to relieve some of his companions, who had been reduced to distress by the revolution. He died blind at Beauvais in 1799.

Prévost d'Exiles, Antoine François, a French writer, born in 1697, studied with the Jesuits, and entered the order, which, however, he soon quitted for the military service. Dissatisfied with the slowness of promotion, he again joined the Jesuits, but, after a short time, once more returned to the career of arms, and served with reputation. Disappointed love next caused him to assume the habit of the Benedictines of St. Maur, and he retired to St. Germain des Prés, where he found consolation in study. His restless temper soon led him to separate himself from the Benedictines, and, in 1729, he went to Holland, and was thrown upon his own resources for subsistence. Here he published his *Mémoires d'un Homme de Qualité*, and, having formed a connexion with a young woman, he went over to England. In 1734, he returned to France, and was appointed almoner and secretary to the prince of Conti. The chancellor d'Aguesseau also selected him to superintend the *Histoire générale des Voyages*. As he was one day walking in the forest of Chantilly, he was attacked by a stroke of apoplexy. Having been found in a state of insensibility by some peasants, the public officer proceeded to open the body of the supposed deceased, when he opened his eyes; but the wound was mortal. This event occurred in 1763.—Besides the works already mentioned, are his *Histoire de M. Cleveland*, *Histoire du*

Chevalier des Grieux, et de Manon Lescaut, with several other romances, and numerous translations from the English of Richardson, Hume, &c.

Prévôt, Cours Prévôtales. Several officers bore the name of *prévôt* in France previous to the revolution. The *grand prévôt de France*, with two deputies (*lieutenants généraux civils, criminels et de police*), exercised jurisdiction in the royal palace and household; the *prévôt des marchands* at Paris and Lyons was the first magistrate of the city. The *prévôt de Paris*, as governor of the *châtelet*, was the chief judicial officer, head of the knights of the town, and its dependent territory, and of the *vicomté* of Paris, and was the *bailli* of the university. The *prévôts des maréchaux de France*, who were lately restored for a time under the name of *cours prévôtales*, were guardians of the public peace, and exercised a rather summary justice over vagabonds, robbers, gipsies and disturbers of the public peace (house-breakers, highway robbers, rioters, counterfeiters, etc.). The nobles, and most of the officers of government, were not amenable to their jurisdiction, which was so badly administered (for the *prévôts* were not jurists), that the celebrated chancellors L'Hopital and D'Aguesseau restricted their authority by the ordinances of 1505 and 1731; and, in 1790, it was entirely abolished. But Napoleon found that the ordinary courts were insufficient to maintain the strict control which he desired over public order. Of this he took advantage to extend his power. By the law of March 3d, 1810, concerning prisons of state, he received the power of confining dangerous persons, without trial, in those prisons. In 1800, the foundation had already been laid for the erection of special tribunals, which the new criminal organization of 1808 confirmed, with new developements. In these special tribunals the president of the court of assizes, with four counsellors and three military men, were to judge vagrants (*gens sans aveu*) for all manner of crimes; and, in case of rebellion, armed smuggling, counterfeiting, and murder, by numbers, the trial was to be without jury, and in a summary form. The imperial decree of April 6, 1809, added to the above specified acts that of having borne arms against Napoleon since September 1, 1804. By the law of April 20, 1810, government was authorized to establish extraordinary special tribunals, for the term of one year, composed of eight members of the court of appeals, in those departments in which certain crimes were unusually frequent. For the trial of smugglers, by an imperial decree of October 18, 1810, *cours des douanes* were established in thirty-six cities, and *cours prévôtales des douanes* in eight cities; the latter had a *grand-prévôt* for president, with eight assistant judges, and in cases of armed smuggling had original jurisdiction, and proceeded without jury. All these extraordinary tribunals, together with the military commissions, were abolished by the charter of 1814 (art. 63), with a proviso for the restoration of the *cours prévôtales*, should it be found necessary. By the law of December 20, 1815, the special criminal courts were reestablished, for two years, under the name of *cours prévôtales*. One of these courts was erected in each department, consisting of a jurist as president, a military officer as *prévôt*, and four members of the court of the first instance in the district. Their jurisdiction resembled that of the special criminal courts constituted in 1808, and their procedure was exactly the same. They were not renewed, and therefore tacitly expired in 1818. The article of the charter above referred to (54th in the new charter) was so amended, August 7th, 1830, as to read thus: "There can be no extraordinary commissions or tribunals, under any title or name whatsoever," the proviso in favor of the *cours prévôtales* being struck out.

Priam; son of Laomedon and Strymo or Placia, called, in his earlier years, *Podarces*; but when Hercules took Troy, and permitted Hesione to ransom one of the prisoners at her own price, she selected her brother Podarces, and gave her veil for him. On this account he was ever after called *Priam* (the Ransomed). When a youth, he marched with the Phrygians against the Amazons, and went as ambassador to the Thracians. After the death of his father he reigned in Troy. By his first wife, Arisbe, daughter of Merops, he had Æsacus. He afterwards gave Arisbe to Hyrtacus, and married Hecuba, by whom he had, according to Homer, nineteen children, among whom Hector, Paris, Creüsa, Laodice, Polyxena, Cassandra (Alexandra), Deïphobus, Helenus, Pammon, Polites, Antiphus, Hipponoüs, Polydorus and Troïlus were the most distinguished. By four concubines, he also had thirty-six sons and four daughters. His name has been rendered famous by the tragical fate of himself and his family, brought on by his blind love for his son Paris; for when he was extremely old, the Greeks demanded of him the restoration of Helen, who had been carried away by Paris, and, on his refusal to give her up, they made war against Troy, took and destroyed the city, after a siege of ten years, his son Hector (q. v.) having already fallen before his eyes. In this night of horror the old man armed himself to seek death in the midst of the enemy; but the prayers of Hecuba prevailed upon him to take shelter at the altar of Jupiter. Here he saw his son Polites fall by the hand of Pyrrhus; and, unable to contain himself, he hurled his javelin at the youthful warrior, who dragged the old man by the hair to the altar, and plunged a sword into his breast.

Priapus; originally a god of the fields in Lampsacus, a town of Mysia, situated in a rich wine country. Venus bore him to Bacchus, when the latter was returning from India, but was unwilling to acknowledge him, on account of his deformity. Others give him a different origin; but he was always god of the fields, the protector of gardens, bees, goats, and sheep. He was represented with horns and goat's ears, and large sexual parts, having in his lap all kinds of fruits; in his hand he held a sickle, and usually a horn of plenty. His worship spread from Lampsacus over Greece to Rome. Some mythologists consider him an emblem of nature.

Price, Richard; a dissenting minister, distinguished as a mathematician and statistical writer. He was born at Llangunnor, in Glamorganshire, in 1723, and was educated at Talgarth, in his native county, whence he removed to a Presbyterian academy in London, and became pastor of a nonconformist congregation, of Arian or semi-Arian principles, at Hackney, where he continued as long as he lived. He commenced his literary career in 1758 by his Review of the principal Difficulties in Morals (8vo.), which was followed by Four Dissertations on the Importance of Christianity, the Nature of Historical Evidence, and Miracles, &c. (1767, 8vo.). In 1769, he received the diploma of D. D. from the university of Glasgow. In 1771 appeared his Observations on Reversionary Payments and Annuities (8vo.), which established his character as a mathematical calculator. He next published an Appeal to the Public on the Subject of the National Debt; and, during the contest with the North American colonies, advocated their cause in Observations on Civil Liberty (1776, 8vo.), Additional Observations, and a Supplement. These tracts provoked the animadversions of a number of writers on the opposite side of the question, and exposed him to some obloquy; but they also procured him a vote of thanks from the corporation of London, presented in a gold box. He engaged in an epistolary correspondence with his friend doctor Joseph Priestley on the subjects of materialism and necessity, the substance of which was laid before the public in an octavo volume, in 1778. When Pitt became prime-minister, he consulted doctor Price, in his schemes for the reduction of the national debt; and the establishment of the sinking fund was the result of his recommendation. (See *Sinking Fund.*) At the commencement of the French revolution, in a sermon (published in 1789) On the Love of Country, he warmly expressed his delight at the emancipation of the French people. This discourse produced Burke's Reflections, in which doctor Price was severely treated. He died April 19, 1791. Besides many papers in the Transactions of the Royal Society, of which he was a fellow, he published Sermons on the Christian Doctrine, as received by the different Denominations of Christians (8vo.), and several single sermons and political pamphlets.

Price. (See *Value.*)

Prickly Pear. This term is frequently applied to various species of *cactus*, but more commonly to the *C. opuntia*, a fleshy and succulent plant, destitute of leaves, covered with *fasciculi* of spines, and consisting of flattened joints, inserted upon each other. The flowers are pretty large, yellow, having numerous petals and stamens. They are succeeded by a purplish and edible fruit. This plant grows wild, in sandy soil, from New York to Florida.

Prideaux, Humphrey, a learned English divine, born in 1648, was educated at Oxford, and, while at the university, published the ancient inscriptions from the Arundel marbles, under the title of *Marmora Oxoniensia.* Lord chancellor Finch, earl of Nottingham, gave him a prebend in Norwich cathedral, and lord North bestowed on him the rectory of Bladen, which, on taking the degree of D. D., he exchanged for the benefice of Soham, in Norfolk. He was subsequently promoted to the archdeaconry of Suffolk, and, in 1702, made dean of Norwich. His death took place November 1, 1724. Besides his great work entitled the Old and New Testament connected in the History of the Jews and neighboring Nations, of which there are many editions, he was the author of the Life of Mohammed (8vo.); the

Original and Right of Tithes (8vo.); Ecclesiastical Tracts (8vo.), &c.

Priestley, Joseph, an eminent philosopher and divine, was born in March, 1733, at Fieldhead, near Leeds. His father was a clothier, of the Calvinistic persuasion, in which he was also himself brought up, under the protection of an aunt, who, after he had attained a respectable degree of classical acquirement in several schools of the neighborhood, finally placed him at the dissenting academy at Daventry, with a view to the ministry. He spent three years at this school, when he became acquainted with the writings of doctor Hartley, which made a great impression upon his mind; and he was gradually led into a partiality for the Arian hypothesis. On quitting the academy, he accepted an invitation to become minister of Needham Market, in Suffolk, when, being suspected of heretical opinions, he received little encouragement; and, after a residence of three years, he undertook the charge of a congregation at Namptwich, in Cheshire, to which he joined a school. Here his reputation increased; and, in 1761, he was invited by the trustees of the dissenting academy at Warrington to occupy the post of tutor in the languages. At Warrington, his political opinions were manifested in an Essay on Government. He also published an Essay on a Course of Liberal Education, and his useful Chart of Biography. A visit to London having introduced him to doctors Franklin, Watson and Price, he was encouraged to compose a History of Electricity, which first appeared in 1767, and procured him an admission into the royal society; he had previously obtained the title of doctor of laws from the university of Edinburgh. In the same year, he accepted an invitation to preside over a congregation at Leeds, where his religious opinions became decidedly Socinian. At Leeds his attention was first drawn to the properties of fixed air; and here he also composed his History and Present State of Discoveries relating to Vision, Light, and Colors. After a residence of six years at Leeds, he accepted an invitation from the earl of Shelburne, afterwards marquis of Lansdowne, to reside with him as a companion, in the nominal capacity of librarian. While forming a part of the establishment of this nobleman, he occupied himself in scientific pursuits, and, in 1773, gave to the Philosophical Transactions a paper on the different kinds of air, which obtained the prize of Copley's gold medal. This was followed by three volumes, the publication of which forms an era in the history of aëriform fluids. In 1775, he published his Examination of the Doctrine of Common Sense, as held by doctors Reid, Beattie and Oswald, and soon after published the treatise of Hartley. He had already declared himself a believer in the doctrine of philosophical necessity, and, in a dissertation annexed to his edition of Hartley, expressed some doubts of the immateriality of the sentient principle in man. This doctrine he still more forcibly supported in his Disquisitions on Matter and Spirit (1777); and the obloquy which these works brought on him producing a coolness in his patron, the connexion was dissolved, the doctor retaining an annuity of 150 pounds per annum, by original agreement. He next removed to Birmingham, where he became once more minister of a dissenting congregation, and occupied himself in his History of the Corruptions of Christianity, and History of the early Opinions concerning Jesus Christ. His Familiar Letter to the Inhabitants of Birmingham was written in support of the claims of the dissenters for a repeal of the test acts. The era of the French revolution added to the usual animosity of theological dispute. The anniversary of the capture of the Bastile being celebrated at Birmingham, a mob assembled, and, although doctor Priestley was not present, proceeded to his house, which, with his library, manuscripts and apparatus, fell a prey to the flames. The outrage was countenanced by too many exercising both lay and clerical influence, and the legal compensation which he obtained fell considerably short of his real losses. On quitting Birmingham, he was chosen to succeed his friend doctor Price at Hackney, where he remained some time in the cultivation of his scientific pursuits, until, finally, goaded by party enmity to seek an asylum in the U. States, which he reached in 1794, and took up his residence at Northumberland, in Pennsylvania. In America he dedicated his whole time to his accustomed pursuits, until a severe illness laid the foundation of a debility in his digestive organs; and a gradual decay followed, which terminated his existence, February 6, 1804, in his seventy-first year. He had composed, not long before, his Jesus and Socrates compared.* Doctor Priestley was an ardent controversialist, chiefly in consequence of extreme simplicity and openness of character, but no man felt less animosity towards his opponents than he did; and many who entertained the strongest antipathy to his opinions were converted into friends by his gentleness and urbanity in personal intercourse. As a man of science, he stands high in the walk of invention and discovery; and to no one has pneumatic chemistry been so much indebted. As a metaphysician, his elucidation of Hartley's theory of association, his works upon philosophical necessity and upon materialism, will always ensure attention. As a theologian, doctor Priestley, who followed his convictions wherever they led him, passed through all changes, from Calvinism to a Unitarian system, in some measure his own; but, to the last, remained a zealous opposer of infidelity. Of his theological and controversial productions, those most generally esteemed are his Institutes of Natural and Revealed Religion, and Letters to a philosophical Unbeliever. He also wrote many works of practical divinity. His works amount to about seventy volumes, or tracts, in octavo. (See his *Life*, by himself and his son.)

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* It was incorrectly stated, in the article *John Blair Linn* (vol. vii), that the merits of Socrates, in this work of doctor Priestley, are placed above those of Jesus Christ.

Priests; officers called by choice or birth to perform religious rites, and to inculcate and expound religious dogmas. Among the ancient pagan nations, all that was dignified and venerable, that deserved respect and obedience, that stood nearer to the Divinity than the common mass of mortals, was associated with the idea of the priestly office. The patriarch of the primitive world was at once the king and the priest of his family; and when the state was developed from the family, the royal and priestly dignity still continued, for a long time, to be united in the same person. (See *Melchisedek*, and *Patriarchs*.) But these offices became separated in those states of antiquity which owed their existence to the ascendency of single heroes or conquering tribes; and by the side of the regal dignity and sovereignty a sacerdotal order, which in some countries was elective, in others hereditary, grew up, and by the reputation of superior wisdom, and secret communion with the gods (whence the priests were also honored as magicians and physicians), inspired the mind with awe. In the states of Western Asia, in Egypt, Greece and Rome, the priests were therefore public counsellors, and instruments of government. Their original office was to bring down divine things to the conception of men (the origin of most of the mythuses may therefore be referred to their explanations of symbols and emblems), and to solemnize the public worship of the gods by sacrifices, prayers and religious pomp (mysteries). Instruction and the interpretation of symbolical doctrines ceased to be a part of their office when the mythical religious system came to an end; and when the poets, rhetoricians and philosophers assumed the office of interpreters of the mythuses, the sole business of the priests became the performance of the religious rites. The Mosaic constitution exhibits them in this stage of developement, and, while it clothes them with great power, reserves the spiritual part of religion to the prophets. (See *High Priest*, and *Theocracy*.) The posterity of Aaron, the hereditary priests of the Hebrews, became, therefore, mere mechanical agents in the daily repetition of the temple service. It fared no better with the Roman Catholic clergy when they adopted the rigor and formalities of the Jewish priesthood, with the view of obtaining the same privileges, and exacting from the Christian laity the same contributions (e. g. tithes) which the Levites had enjoyed. Such a tendency was altogether foreign from the Founder of Christianity and its apostles. The primitive Christian communities had, indeed, teachers, whose duty it was to expound the divine word, and to exercise a paternal care over their disciples; but not to perform pompous ceremonies, nor to rule over the conscience. Some of these teachers were called *presbyters*, whence the term *priest*, in our language, is derived (see *Presbyterians*); but they were by no means priests in the sense of the word which prevails at present. In the Catholic church, *priests* are that order of the clergy who perform the holy office of the mass, and in some of the Protestant churches, those who administer the sacraments, preach, &c. (See *Hierarchy*, and *Ordination*.) Among the Hindoos, the sacerdotal caste styled *Bramins* form the highest caste. (See *Bramins*, and *Caste*.) In the systems of Lamaism and Mohammedanism, the dalai-lama and the caliph are the heads of the priesthood. (See *Lama*, and *Caliph*.)

Priests, Non-juring, or *Prêtres Insermentés*. The schism in the French church, produced by the *constitution civile du clergé* of the 12th of July, 1790, was connected with the old relations of that church with the Roman see and the French government, and of these latter with each other. Louis IX, by his pragmatic sanction (1268), defended the rights of election against the see of Rome, and restricted the pecuniary exactions of the latter. By the concordate of Leo X with Francis I (1516), the right of appointing the bishops and prelates was secured to the king, and that of receiving the annates, to the pope; at the same time, an opportunity was afforded to the nobles, by requiring of them a shorter period of preparation, to exclude the learned class, who were really the clergy, from the higher and more profitable ecclesiastical offices. By a royal edict of 1606, this exclusion of the learned was completed, and those abuses introduced, which, in connexion with the licentiousness and immorality of some of the higher clergy, contributed to produce the revolution. The immense revenues of the Gallican church were not applied to spiritual purposes, but merely to supply to the younger sons of nobles the means of leading dissipated and dissolute lives, while the real laborers in the church—the priests—were obliged to live, for the most part, on very moderate, and often scanty incomes. The declaration of the French clergy of 1682 (denying the personal infallibility of the pope and his power to interfere in secular affairs), the Jansenist controversy, and the bull Unigenitus (1713), had introduced divisions into the church. It was no wonder, then, that when, in 1788, the government itself called the people to a great political reform, the church should have been one of the first objects of attention. The first step was to declare the possessions of the church national property, which, after supplying the necessary wants of the church, was to be employed for purposes of state. The relations of the state to the Catholic church were afterwards entirely changed by the civil constitution of the clergy above mentioned. The 135 bishoprics, which were of very unequal extent, were reduced to 83, one for each department, and the whole country was divided into ten archbishoprics. The ten archbishops were to have their seats at Rouen, Rheims, Besançon, Rennes, Paris, Bourges, Bordeaux, Toulouse, Aix and Lyons. The bishops were to officiate as the curates of their sees; the priests and bishops were to be chosen by the people; the canonical consecration was to be performed by the bishop or archbishop (the archbishop being consecrated by the oldest bishop in the archbishopric). The pope, as the visible head of the church, was merely to be informed after the choice had taken place, without any confirmation from him being necessary; and all the bishops, both those in office at the time and those who should thereafter be chosen, were to take an oath "to watch over the congregations committed to them, to be faithful to the nation, the law and the king, and to support the constitution, which should be framed by the national assembly and accepted by the king." Most of the old prelates and many of the priests refused to take this oath. Such refusal was declared equivalent to a resignation, and others were chosen to supply their places. The non-juring clergy formed one of the most powerful means of opposing republicanism in France; they kindled the war in La Vendée; the greatest part of them emigrated, and published excommunications and charges of heresy, particularly from England, against those who had submitted to the new order of things. The national convention opposed these attacks by the most rigorous measures. Several hundreds of the clergy, who refused to take the oath, were murdered in the prisons of Paris, on the 2d and 3d of September, 1792. The revolutionary tribunal endeavored to extirpate them from the republic. Carrier drowned fifty-eight at once, at Nantes; and a law was passed condemning them to deportation *en masse*. Even those servants of religion who had submitted to the civil constitution were not suffered to live in peace; religion itself had become hateful to political fanaticism. This violence was carried so far, that the constitutional bishop of Paris, John Baptist Joseph Gobel, a man 67 years of age, who had been educated at Rome, and had been suffragan of the bishop of Basle (since 1772), appeared at the bar of the convention, acknowledged himself an impostor, who had hitherto deceived the people with doctrines which he did not believe himself, and tore off the badges of his sacred office. He was soon after guillotined. This madness, however, did not long continue. Some constitutional bishops obtained from the national convention, in 1794, the declaration of freedom of conscience, and entered into an association with their clerical brethren. The consequence of this was the national councils of 1797 and 1801, the acts of which were printed; and their principles, founded on the *constitution civile*, met with approbation from many foreign bishops, particularly the Italian. Of the 40,000 parish churches of France, 32,214 were again opened in 1796, and almost all were filled by priests who had taken the oath (*prêtres assermentés*). The French church was far advanced towards independence, when the revolution of 1799, and the concordate of 1801, in which Napoleon sought to make the church a support to his power, restored its old connexion with Rome. The result showed how much Napoleon erred in this policy.

Primage is a small allowance made by the shippers to the master of a freighting vessel, for his care and trouble in respect to the cargo. It is usually confounded with average (see *Average*) in the bill of lading, and both are estimated at a certain rate per cent. on the amount of the freight.

Primary. (See *Ornithology.*)

Primary Rocks. (See *Geology.*)

Primate (*primas regni*, head of the kingdom); in the European states, the chief archbishop in the state, and the first subject of the realm; in the Catholic church, the primate is also perpetual legate of the pope, and has a sort of spiritual jurisdiction over the other archbishops. There are also primates of provinces. The archbishop of Toledo is primate of Spain; the archbishop of Braga is styled primate of Portugal, although he is actually inferior to the patriarch of Lisbon. In England, the archbishop of Canterbury is styled primate of all England, and the archbishop of York primate of England. In the Protestant Irish church, the archbishop of Armagh is primate of all Ireland; the archbishop of Dublin, primate of Ireland; the archbishop of Cashel, primate of Munster, and the archbishop of Tuam, primate of Connaught. In the German empire, the archbishop of Salzburg was primate of Germany. In France, the archbishop of Lyons is primate of France; that of Bourges, primate of Aquitania, and that of Rheims, of Normandy. In Hungary, the archbishop of Gran is primate; in Poland, the archbishop of Gnesen.

Primaticcio, Francesco, a painter of the Bolognese school, born at Bologna, in 1490, received his first instruction from Innocenzo da Immola, and completed his studies under Giulio Romano. In connexion with several of the pupils of the latter, he painted the *Palazzo del Tè*, in Mantua (q. v.), from Giulio's designs. Through the recommendation of Frederic, duke of Mantua, Primaticcio was taken into the service of Francis I of France, in 1531. His arrival and residence in France makes an epoch in French art. To his influence were owing, not only numerous paintings in fresco and works in stucco, which the king caused to be executed, but several branches of painting, as, for instance, enamel painting, and designs for tapestry, were carried to great perfection through his exertions. Francis sent him to Italy to purchase antique statues, of which he made a respectable collection, and caused numerous casts to be executed. On the death of Rosso, the royal painter, Primaticcio succeeded him in his post, and Francis II appointed him superintendent of the royal buildings. He furnished the designs of several architectural works, among them of the tombs of Francis I and Henry II. His works at Fontainebleau, however, gained him more reputation. He was assisted in his labors by several of his countrymen, of whom Niccolò del Abbate was the most distinguished. Primaticcio died in 1570. The works which he executed in France are nobler and freer, in point of design, than those which he executed in Giulio's school. In his great works he often violated nature.

Prime Minister, or **Premier.** (See *Minister.*)

Prime Numbers are those which have no divisors, or which cannot be divided into any number of equal integral parts, less than the number of units of which they are composed; such as 2, 3, 5, 7, 11, 13, 17, &c. These numbers have formed a subject of investigation and inquiry from the earliest date down to the present day; and a rule for finding them is still amongst the desiderata of mathematicians. The method of finding a prime number beyond a certain limit, by a direct process, is considered one of the most difficult problems in the theory of numbers, which, like the quadrature of the circle, the trisection of an angle, and the duplication of the cube, have engaged the attention of many able mathematicians, but without arriving at any satisfactory result.

Prime Vertical is that vertical circle, or azimuth, which is perpendicular to the meridian, and passes through the east and west points of the horizon.

Prime Verticals, in dialling, or **Prime Vertical Dials**, are those that are projected on the plane of the prime vertical circle, or on a plane parallel to it. These are otherwise called *direct*, *erect*, *north*, or *south* dials.

Primer. *Great primer* and *long primer* are different kinds of type. (See *Type.*)

Primitive Rocks. (See *Geology.*)

Primogeniture. The right of primogeniture in males seems anciently to have prevailed only among the Jews. The first born in the patriarchal ages had a superiority over his brethren, and, in the absence of the father, was priest of the family. Among the Jews, he had a double portion of the inheritance; in the same manner as, by the laws of Henry I, in England, the eldest son had the capital fee, or principal feud of his father's possessions, and no other preëminence; and as the eldest daughter had the principal mansion when the estate descended in coparcenary. The "insolent prerogative of primogeniture," as Gibbon denominates it, was unknown among the Romans; the two sexes were placed on a just level; all the sons and all the daughters were entitled to an equal portion of the patrimonial estate. The Greeks, the Britons, the Saxons, the Danes, &c., and even, originally, the feudists, divided the lands equally, some among all the children at large, some among the males only. The equal division of the patrimonial estate among the children is certainly the most obvious and natural way. When the emperors began to create honorary feuds, or titles of nobility, it was found necessary, in order to preserve their dignity, to make them impartible, and, in consequence, descendible to the eldest son alone. This example was further enforced by the inconveniences that attended the splitting of estates; namely, the division of the military services, the multitudes of infant tenants, incapable of performing any duty, the consequent weakening of the strength of the kingdom, and the inducing younger sons to take up with the business and idleness of a country life, instead of being serviceable to themselves and the public, by engaging in mercantile, military, civil or ecclesiastical employments. These reasons occasioned an almost total change in the nature of feudal inheritances; so that the eldest son began, universally, to succeed to the whole of the lands in all military tenures.

In this condition, the feudal constitution was established in England by William the Conqueror. Before the conquest, the descent of lands was to all the sons alike. Socage estates in England frequently descended to all the sons equally, till the time of Henry III, when, in imitation of lands in chivalry, they had almost entirely fallen into the right of succession by primogeniture; except in Kent, where they gloried in the preservation of their ancient gavelkind tenure, of which a principal branch was the joint inheritance of all the sons; and except in some particular manors and townships, where their local customs continued the descent sometimes to all, sometimes to the youngest son only, or in other more singular methods of succession. By the English law, there is no right of primogeniture among females, except as to the inheritance of the crown. (Black. *Commentaries*, ii, 215.) The right of primogeniture, which calls the eldest born to the crown, was not introduced into France till very late; it was unknown to the first and second race of kings. The four sons of Clovis shared the kingdom equally among themselves. Those of Louis le Debonnaire did the same; and it was not till the race of Hugh Capet ascended the throne, that the prerogative of succession to the crown was appropriated to the first born. The right of primogeniture is now abolished in France; but it prevails in some degree in every other nation of Europe. In the U. States, no distinction of age or sex is made in the descent of estates to lineal descendants. Though primogeniture and the preference of males are now thus universally given up in this country, yet in some states they remained in full force, and in others modifications of them continued for a long period. The English common law, with regard to descents, prevailed in New Jersey until 1780, in Maryland and South Carolina until 1786, and in Virginia until 1787. In Massachusetts, Rhode Island and Connecticut, the eldest son, probably in imitation of the Jewish law, had formerly a double portion of the real and personal estate, and, in Delaware, of the real estate, of his father. (*Amer. Jurist*, No. I. 80.)

Primrose (*primula*). A genus of beautiful low Alpine plants, abounding especially on the mountains of the eastern continent. A few species are found in North America, chiefly in Canada, on the Rocky mountains, and on those which border the North Pacific. Some are among the earliest flowers in spring, as the common primrose, the oxlip and cowslip of Europe; and several are cultivated in gardens as ornamental plants. Their roots are perennial; the leaves almost always radical; and the flowers supported on a naked stem, and usually disposed in a sort of umbel. The calyx is tubular; the corolla funnel-shaped, and divided at the summit into five equal lobes; the stamens five in number, with a single style; and the capsule oval, one-celled, and containing numerous seeds attached to a central placenta. The varieties of the common primrose, which have arisen from cultivation, are very numerous. The *P. auricula*, a native of the Alpine regions of Italy, Switzerland and Germany, is also a well known favorite with the florist.

Primum Mobile, in the Ptolemaic astronomy; the ninth or highest sphere of the heavens, whose centre is that of the world, and in comparison of which the earth is but a point. This the ancients supposed to contain all other spheres within it, and to give motion to them, turning itself, and all of them, quite round in twenty-four hours.

Prince Edward's Island. (See *John's, St.*)

Prince of Wales's Island (called by the Malays *Pulo Penang*, or *Betel-nut island*) is an island in the East Indian sea, near the coast of Siam; latitude of its north-eastern point, 5° 25′ N.; lon. 100° 19′ E. It measures about 160 square miles, and has a fine harbor. Its basis is a mass of granite. The western side affords abundance of timber for ship-building. The remainder is extremely fertile, and yields large crops of pepper, coffee, sugar, rice, ginger, yams, sweet potatoes, betel-nut, cocoa-nut, spices, &c., and the elastic gum-vine, resembling the caoutchouc plant. The climate is temperate. George Town is the capital. Population of the island and its dependencies in 1822, 51,207.

Prince Regent's Inlet. (See *North Polar Expeditions.*)

Prince's Metal; a mixture of copper and zinc, in imitation of gold.

Princes of the Blood; those persons who have the same origin with the reigning house, and, after the extinction of the same, have the next right to the throne. Thus the princes of the houses Orleans and Bourbon Condé were formerly princes of the blood. Louis XIV also declared his sons by his mistresses La Valière and Montespan princes of the blood; but the dignity was taken from them after his death.

Princeton; a post-town of New Jersey, 10 miles north of Trenton, 40 north-east of Philadelphia, and 49 south-west of New York; lat. 40° 22′ N.; lon. 74° 35′ W. It is a pleasant town, and contains a college, a theological seminary, a brick Presbyterian church, and more than 100 houses. The college of New Jersey was founded in 1746, at Elizabethtown; the next year it was removed to Newark, and a royal charter was granted to it in 1748, by its present title. It remained at Newark ten years, and was permanently established at Princeton in 1757. Its situation is peculiarly healthful and pleasant, and it has long been a highly respectable and flourishing seminary. The college edifice is styled *Nassau Hall*, and is four stories high, 175 feet long, and 50 wide, and contains a chapel about 40 feet square, and 60 rooms for students. There are also buildings for the library, philosophical apparatus, museum, refectory, recitation rooms, &c. The library is very well selected, and contains 8000 volumes. The students' libraries contain 4000. There are ten instructers and 105 students. Commencement is on the last Wednesday of September. There are two vacations, viz. from commencement six weeks, and from the first Thursday after the second Tuesday of April six weeks. The board of trustees consists of twenty-three members. The governor of the state is, *ex officio*, president of this board; and one half of the remainder are clergymen. The executive government is composed of a president, who is also teacher of theology and moral philosophy; a vice-president, who is professor of languages and belles-lettres; a professor of mathematics and natural philosophy; a professor of chemistry, experimental philosophy, and natural history; and three tutors. The theological seminary of the Presbyterian church in the U. States was also established at Princeton, in 1812. The associate reformed church afterwards united with the Presbyterian, and thence their seminaries were joined. A stone edifice, intended to accommodate 100 students, is appropriated to this institution. The number of professors is three; of students, ninety-two; of graduates, 537; of volumes in the library, 6000. A residence of three years is required to complete the course of study. Candidates for admission are required to produce testimonials of good natural talents, of good moral and religious character, of belonging to some regular church, and of having passed through a regular course of academical studies. Tuition and the use of the library are afforded free of expense to every student, and there are charitable funds for aiding the indigent. Princeton was distinguished, during the revolution, by a decisive battle between the British troops and a division of the American army commanded by general Washington. The British lost 100 men, and 300 more, who had taken refuge in the college, were forced to surrender. In this action, January 3, 1777, general Mercer of Virginia was killed.

Principal, in criminal law. (See *Accessary.*)

Printer's Ink. (See *Ink.*)

Printing, Art of, in regard to the processes used, is divided into *xylograph-*

ic, *typographic* and *stereographic*. In *xylographic* printing, the writing is carved on wooden tables; they are then covered with ink, the paper is put upon them, and an impression is taken. This is the oldest mode of printing, and is still in use in China, Japan and Thibet. *Typographic* printing is that in which single letters or types are used, which are properly arranged, and then the work is printed. For a short time, carved letters were in use; but cast letters were soon introduced, and are still used. In *stereographic* printing, pages composed of many types are transformed, by casting, into plates, or tables, from which copies are printed. . A mould of plaster is taken from a page of types, and from this the stereotype plates are obtained by casting. The Chinese, even in the reign of their emperor Wu-Wang, who lived about 1100 B. C., are said to have been well acquainted with xylographic printing; but the Japanese assume the merit of the invention. In Thibet, also, according to the accounts of various travellers, this art has been exercised from time immemorial. Although it had been the custom, for thousands of years, to make impressions with seals on wax, which might have easily led to the invention of the art of printing, Guttenberg first made this discovery, about three centuries and a half ago; for it may justly be questioned, whether the Europeans had then any knowledge of the art of printing among the Chinese, although it is not to be denied, that, before the time of Guttenberg, and even in 1423, the art of cutting images on wood, with a few lines of text, was well known. Three cities contend for the honor of the invention of typographical printing—Harlem, Strasburg and Mentz. The people of Harlem maintain that their citizen Laurence Jansoen, under the name of Coster (i. e. sacristan in the great parochial church at Harlem), as early as 1430, invented the art of cutting on wooden tables. But he did not stop here; and there are many of Coster's impressions, as Scheltema and Kőnings have tried to prove, as late as the year 1823, made with movable types of wood, and afterwards of lead and tin. If the invention of the art of printing is thus due to the Dutch (Van Hultem, a learned Dutch writer, is opposed to this opinion), the invention of the art in Mentz still ought to be considered as independent of that in Harlem; for the account that Coster was robbed of his types by his assistant John, who fled through Amsterdam and Cologne to Mentz, and there printed, in 1442, *Alexandri Galli Doctrinale* and *Petri Hispani Tractatus*, is without foundation. The people of Strasburg ascribe this invention to Güttenberg, in Strasburg. The people of Mentz, on the contrary, maintain that Guttenberg invented typographical printing, not in Strasburg, but in Mentz. The truth is, that Guttenberg (q. v.) conceived the first idea of his invention, and made a few experiments of it at Strasburg, but first brought it to perfection, with the aid of Peter Schőffer, in Mentz. It is proved that Guttenberg, as early as 1436, when he was still at Strasburg, had his printing instruments, and, the same year, made some trials with a printing press. But, dissatisfied with the slow process of the xylographic method, he began to consider whether he might not print with single letters, and use the same letters more than once. This led him to the invention of movable letters, which he must have used earlier than 1442, for, in this year, separate letters were in use. In 1445, Guttenberg returned to his native city, Mentz; and with 1449 begins the period of the completion of the art of printing. Guttenberg, in the course of this year, connected himself with a rich citizen in Mentz, named John Fust (Faustus), who carried on the business of founding, in company with Peter Schőffer, of Gronsheim. Faustus, soon after (probably in 1453), entered into a copartnership with this Schőffer, an inventive genius, who now became the true perfecter of the art of printing. Guttenberg, indeed, had invented movable letters, and made them first of wood, then of lead, and at last of tin. But the art of printing continued to be very difficult and expensive, till the metallic letters cast by John Faustus, or Peter Schőffer, and other improvements, were invented. The oldest work, of any considerable size, printed in Mentz, with cast letters, by Guttenberg, Faustus and Schőffer, finished about 1455, is Guttenberg's Latin Bible, which is called, also, the *Forty-two-lined Bible*, because in every full column it has forty-two lines. Faustus, having separated from Guttenberg, in 1456, and, by means of a loan of 2020 florins, having obtained his printing press for his own use, undertook, in connexion with Peter Schőffer, greater typographical works, in which the art was carried to higher perfection. Faustus was particularly engaged in the printing of the Latin and German Bible, by the copying of which the monks had hitherto gained considerable sums. As they could not understand this astonishing multiplication of the printed copies, and therefore ascribed it to some inspiration of Satan, he became involved in a violent quarrel with them. He went to Paris with his Bibles (the first copies of which, bearing date, were printed in 1462), for the purpose of selling them there. Being obliged to leave the city in haste, on account of the persecutions of the German monks, this probably gave rise to the well-known tradition, that the devil had carried him off. In 1466, Faustus made a second journey to Paris, and died there of the plague; upon which P. Schöffer continued the printing business alone, at Mentz. After the separation of Guttenberg and Faustus, the former had found means to procure a new printing press, and had struck off many works, of which the most remarkable is the Astrological and Medical Calendar (in folio, 1457), considered the first known work printed with the date annexed. As the letters of this Calendar are entirely different from those with which Faustus and Schöffer printed, it is confidently inferred that this Calendar was printed at the press of Guttenberg. After 1462, many workmen went from Mentz, and established presses in Germany and in foreign countries, first in Italy, then in France, the king of which, at that time, was the first prince that interested himself in the new art. Besides Faustus, Schöffer and Guttenberg, one Albert Pfister became acquainted (it is not known by what means) with the art. Soon after 1450, he also printed a Bible. As the art of printing began with the impression of whole blocks, it has come to the same point again in its progress towards perfection, viz. by the introduction of stereotype plates. The art of printing, as every one knows, was greatly advanced by the invention of movable letters; but on this very account, as often as a book is reprinted, new errors creep in; and, in printing, the letters sometimes stick to the balls, and are drawn out with them, whence new errors of the press are made, because the printer does not always set them again correctly. These imperfections are particularly felt in books consisting of tables of numbers. Firmin Didot, son of Francis Ambrose Didot, when engaged in printing the logarithmic tables of Callet, invented a method to prevent all errors, by causing the pages, composed of movable letters and figures, and accurately corrected, to be cast into entire plates, which might be moved without displacing a single letter. By this contrivance, the displacement of the letters, and new errors of the press during the printing, are made impossible. If an error is afterwards discovered, the plate is pierced, the wrong letter taken out, and the right one put in, and it is soldered again, so that the plate may be thus made perfectly correct. Didot called these letters, thus united, *stereotype*, from the Greek στερεος (firm, standing firm) and τυπος (figure, form). He printed Callet's above-mentioned logarithmic and trigonometrical tables with them in 1795. The invention of stereotype printing does not properly belong to Didot, but is ascribed to the Dutch. More than a hundred years since, it was in use among them. The inventor of it is said to have been J. van der Mey, father of the well-known painter of the same name, who resided at Leyden towards the end of the seventeenth century. He prepared and cast immovable forms or plates for a Dutch Bible in quarto, of which many thousand copies were struck off. The plates of this Bible are still in the hands of the booksellers S. & J. Luchtmans, in Leyden. At the death of Mey, the art of making fixed types was lost again in Holland; at least, no further use was made of it, because the method was too expensive. A Scotchman, also, by the name of Ged, at the beginning of the eighteenth century, invented the art of printing from cast plates, and struck off an edition of Sallust, with types soldered together. Hence it appears that Didot had predecessors in stereotype or stereographic printing. He, however, greatly improved the art. His improved contrivance was as follows: He took movable letters, differing from the common ones only by being somewhat shorter, and of a harder substance. These were set in the usual way; the proof sheets were then printed and corrected, till the whole copy was as free from errors as possible. Then every page set with these hard letters was pressed upon a plate of properly prepared metal. These plates served as matrices for whole pages; and the letters of the hard substance, mentioned above, might now be separated from each other, set anew, and used to form other matrice-plates. A page which served for a matrix was pressed upon melted type-metal, which, hardening immediately, served for printing. In printing, the plates, or pages, were set upon plates of brass, which took the place of a form, and were necessary to support the whole; for these stereotype pages or columns, being very thin, could otherwise hardly bear the violence of printing. The process of stereotyping, at present, is simple. A page of any work proposed to be stereotyped, is set up in the usual manner, with movable types. From this page, when corrected, a mould in plaster is taken off, and from this mould a plate of type metal is cast, having all the characters in relief, and being a fac-simile of the original page. From this plate the printing is executed, and there must be, of course, as many plates cast as there are pages in the book to be printed. The plaster used for forming the moulds is pulverized gypsum, dried by heat, and mixed with water, to which is added a little whiting, to diminish the tendency of the plaster to shrink and crack. After the form of types has been slightly oiled, and surrounded with a brass frame, fluid plaster is applied over the surface, with a brush or roller, so as to fill every cavity of the letters. A quantity of plaster, mixed with water to the consistence of cream, is then poured on the type, and the superfluous part scraped off. When the plaster has become hard, it is lifted off by the frame, and detached from it. It is then baked to dryness in an oven, and, when quite hot, it is placed in an iron box, or casting-pot, which has also been heated in an oven. The box is now plunged into a large pot of melted type-metal, and kept about ten minutes under the surface, in order that the weight of the metal may force it into all the finer parts of the letters. The whole is then cooled, the mould is broken and washed off, and the back of the plate turned smooth in a lathe, or planed by a machine. For typographical beauty, the most distinguished printers are Baskerville in England; Didot and Crapelet in France; Bodoni in Italy; Ibarra in Spain; and Breitkopf, Göschen and Tauchnitz in Germany. Next to types, the chief instrument used in this art is the printing press. The ink is first applied over the whole surface of the types; the paper, previously moistened, is then laid down upon them; the whole is passed under the press, and the paper, being brought into forcible contact with the types, receives from their surface the ink necessary for a distinct impression. Printer's ink (q. v.) is composed chiefly of lampblack and oil, inspissated by boiling and burning. Oil is necessary that the ink may not dry during the operation, and it is reduced by boiling to prevent it from spreading on the paper. It is applied to the types by large elastic balls, made of leather and stuffed with wool, or by elastic rollers. Guttenberg printed, at first, with writing ink, and afterwards used lampblack. About 1450, or somewhat later, Faust and Schöffer invented printer's ink. The common old printing press derives its power from a screw, which is turned by a lever, and acts perpendicularly on the platten, or level part, which transmits the pressure. Various improvements have been made in the printing press, by lord Stanhope and other inventors, in most of which a cast iron frame is substituted for a wooden one, being more inflexible; and a combination of levers is used, so arranged as to cause the platten to descend with decreasing rapidity, and consequently with increasing force, till it exerts the greatest power at the moment of contact of the paper with the types. Before the press was invented, impressions were taken from the wooden tables by means of a rubber of horn. Guttenberg invented the press. In a Strasburg document, it is proved that this apparatus was in use as early as 1436. In France, on the other hand, there were no presses in 1458; for during that year Charles VII sent a man to Strasburg, to learn the art of printing there. Leonard (John) Danner, who died 1585, first introduced brazen spindles into printing, in 1550, at Nuremberg. Printing by machinery had its origin within the present century. It has produced a very great improvement in the expedition with which work is executed, and is now extensively applied to the printing of newspapers, and even of books. Various machines are already introduced into use, most of which perform the processes of inking the types, conveying the paper, and giving the impression. For distributing the ink on the types, elastic cylinders are employed, called *inking-rollers*, made of a composition of glue and treacle, which combines the properties of smoothness, elasticity, and sufficient durability. These transmit the ink to the types by rolling over their surface. The impression is performed, in most of the English machines, by large cylinders, which revolve upon the types, having the sheet of paper confined to their surface by bands of tape. The types are arranged in some machines in the common flat form; in others, the characters are placed in a convex form, upon the surface of cylinders. To produce the latter effect, Mr. Nicholson proposed to cast the body of the types with a tapering or wedge form, like the stones of an arch; but Mr. Cowper has produced the same result more expeditiously, by curving stereotype plates into the required shape. Messrs. Donkin and Bacon placed their types on the four sides of a revolving prism, while the ink was applied by a roller, which rose and fell with the irregularities of the prism, and the sheet was wrapped on another prism so formed as to meet the surfaces of the first. A common printing press gives about 250 impressions per hour; whereas of the Times (a London newspaper), printed by Applegarth and Cowper's machine, it is stated that 4000 per hour are printed on one side. The first working machine which printed by steam, was erected by Mr. Koenig, in 1814. In this country, Treadwell's power-press is the machine most employed. In this invention, the types are inked by elastic rollers, and the distribution of the ink rendered equal by a revolving table, which passes in contact with the rollers. The impressions are made by a flat surface or platten, instead of a cylinder, so that cleaner and better impressions are supposed to be obtained from it than from any other machine. (For the correction of the press, see *Correction*.)

The author of Sketches of China gives the following account of Chinese printing: "The means in use among the Chinese for producing an impression of letters appear to be nearly the same with those invented in the infancy of the art. Blocks of hard wood, or masses of metal forming a kind of stereotype, are printed from, by a simple and expeditious process, and solely by manual labor, as presses for the purpose are entirely unknown. The Canton Gazette, a kind of court journal of appointments, arrivals and departures, is one of the few publications which are printed from movable types. The blocks which are mostly used for engraving these stereotypes upon, are made of hard and well-seasoned wood, divided into slabs, in the direction of the grain. The subject to be engraved is carefully written or drawn on thin paper, and pasted reversed upon the board; the wood is then cut from around the characters, and the letters remain in low relief. Much care is used in adjusting the written pattern, as it is not possible to rectify a mistake on wood, as on copper or other metal. The cost of engraving depends entirely on the size and delicacy of the letters, the price increasing in proportion to the smallness of the type. The equipments of a printer are very simple and cheap, and the operations less complicated than almost any other mechanical process. The board or slab of wood is placed on a table before the workman, and a pile of dry paper, cut to the proper size, at his side, when, with a rude bamboo brush, a coating of liquid Indian ink is put upon it; a sheet of paper is then placed on the top, and the impression completed by rubbing it over once or twice with a kind of vegetable fibre; the sheet is then lifted off, and the process repeated with the next. The paper used is very thin, and is only printed on one side; the sheet is folded with the blank sides in contact, and the two edges are bound into the back of the book, making it resemble a volume, the leaves of which are uncut; the paging, &c., is on the external margin. In this simple manner, all books and engravings on wood are printed, and a skilful workman is able to produce the impressions with as much celerity as our own, with the use of the press. Works of minor consequence are generally executed in a flimsy and imperfect manner, the printing of some being very indifferent at first, and nearly unintelligible by the time a full edition has been taken off. The price of books is low, and there are numerous book shops and stalls in all the principal streets. The binding is very different from our own, the cover being merely soft paper, and the title carefully written on the edge of the bottom leaves. Five or six volumes are enclosed in a pasteboard case, and the books arranged on shelves, so as to present the titles to the front. Spurious editions are said to be very common, and I have never discovered that there was any protection of the copyright by law; consequently numerous incomplete copies of the original are circulated. Works are sometimes met with, the letters of which are white, on a black ground, the characters being cut, as in the copperplate engraving, below the surface. There are, in most cases, specimens of the various kinds of writing, intended as copies to write from, as well as some school books."

Prior, in monasteries; the next officer in rank to the abbot; or, where there is no abbot, the superior of the monastery.—*Prioress* is applied, in a similar sense, to the head of a female convent. A monastery which is under the government of a prior is called a *priory*. (See *Abbot*, and *Monastery*.)

Prior, Matthew; an English poet, born in 1664, in London, or at Winborne, in Dorsetshire. His father dying when he was young, he was brought up by an uncle, who kept the Rummer tavern at Charing-cross, and sent to Westminster school. He early imbibed a strong taste for classical literature, and attracted the notice of the earl of Dorset (see *Sackville*), who enabled him to enter himself, in 1682, at St. John's college, Cambridge, where he proceeded B. A. in 1686, and was shortly after chosen fellow. At college he contracted an intimacy with Charles Montagu, afterwards earl of Halifax, in concert with whom, in 1688, he composed the Country Mouse and City Mouse—a parody on Dryden's Hind and Panther. In 1690, he was introduced at court by the earl of Dorset, at whose recommendation he was appointed secretary to the English plenipotentiaries at the Hague. With this post he also held the title of gentleman of the king's bed-chamber; and he presented an ode to king William in 1695, on the death of queen Mary; and soon after displayed his humorous vein in a parody of Boileau's ode on the taking of Namur, when it was recaptured by William. In 1697, he was nominated secretary to the commissioners for the treaty of Ryswick; and, on his return from that employment, was made secretary to the lord-lieutenant of Ireland. He was afterwards secretary to the earls of Portland and Jersey, successively ambassadors to France. At length he was made under-secretary of state, and, while holding that office, was sent to France to assist in the partition treaty. In 1701, he succeeded Locke as a commissioner at the board of trade, but soon after deserted the whigs and joined the tories, for which no satisfactory reasons have been assigned. At the beginning of the reign of Anne, he published a volume of poems, and took some share in the Examiner. When the tories again obtained the ascendency, he was employed in secretly negotiating at Paris the terms of the treaty of Utrecht. (q. v.) He remained in France, with the appointment of ambassador, and, after the departure of the duke of Shrewsbury, in 1713, publicly assumed that character. On the accession of George I, he was recalled, and examined before the privy council in respect to his share in negotiating the treaty of Utrecht, and treated with great rigor for some time, although ultimately discharged without trial. Being without any provision for his declining years, except his fellowship, he again applied himself to poetry; and having finished his Solomon, he published his poems by subscription. The publication, being liberally encouraged by party zeal, produced a considerable sum, which was doubled by the earl of Oxford, at whose seat the author died, after a lingering illness, in 1721, in the fifty-eighth year of his age. He was interred in Westminster abbey, under a monument, for which "last piece of human vanity," as he styles it in his will, he left the sum of £500. Prior seems to have made his way by wit and social qualities, rather than by moral or political endowments of a superior order. He is said to have always retained a taste for coarse intercourse and gross enjoyments. As a poet, his reputation has declined of late years, the humor in which he principally excels being overlooked on account of the character of his serious performances, which, although, as in his Solomon, and Henry and Emma, splendid and correct in diction, harmonious in versification, and copious in poetical imagery, fail in moving either the feelings or the fancy. The great art of Prior consists in telling a story with a degree of poetical ease and vivacity, which, perhaps, setting aside La Fontaine, has never been excelled. His Alma, a piece of philosophical pleasantry, exhibits a felicitous vein of humor; and for his lighter pieces he is now chiefly read. A History of his Own Times, compiled from his MSS., contains little from his pen, and is of small value. His poems were published in 1733, in 3 vols., 8vo., and are also in all the collections.

Priscian. (See *Philology*.)

Prism, in geometry, is a body, or solid, whose two ends are any plain figures which are parallel, equal and similar; and its sides, connecting those ends, are parallelograms. Hence every section parallel to the base is equal and similar to the base; and the prism may be considered as generated by the parallel motion of this plane figure. Prisms receive particular names, according to the figure of their bases; as a *triangular* prism, a *square* prism, a *pentagonal* prism, a *hexagonal* prism, and so on. And hence the denomination *prism* comprises also the cube and parallelopipedon, the former being a square prism, and the latter a rectangular one. And even a cylinder may be considered as a round prism, or one that has an infinite number of sides. Also a prism is said to be *regular*, or *irregular*, according as the figure of its end is a regular or an irregular polygon. The *axis of a prism* is the line conceived to be drawn lengthwise through the middle of it, connecting the centre of one end with that of the other end. Prisms, again, are either *right* or *oblique*. A right prism is that whose sides and its axis are perpendicular to its ends, like an upright tower; and an oblique prism is when the axis and sides are oblique to the ends; so that, when set upon one end, it inclines on one hand more than on the other. The principal properties of prisms are, 1. that all prisms are to one another in the ratio compounded of their bases and heights; 2. similar prisms are to one another in the triplicate ratio of their like sides; 3. a prism is triple of a pyramid of equal base and height, and the solid content of a prism is found by multiplying the base by the perpendicular height; 4. the upright surface of a right prism is equal to a rectangle of the same height, and its breadth equal to the perimeter of the base or end, and therefore such upright surface of a right prism is found by multiplying the perimeter of the base by the perpendicular height. Also the upright surface of an oblique prism is found by computing those of all its parallelogram sides separately, and adding them together. And if to the upright surface be added the areas of the two ends, the sum will be the whole surface of the prism.

Prism, in optics, is an instrument employed for showing the properties of solar light, and consists merely of a triangular prism of glass, which separates the rays of light in their passage through it. (See *Optics*, division *Colors*.)

Prismatic Spectrum. (See *Colors*.)

Prison Discipline. The true and only real object of punishment is the prevention of crime. There is, of course, a great latitude of choice in the means which may be adopted for the attainment of this object—a latitude to be limited by a just regard to the rights inseparable from human nature, however depraved, by a correct view of the true power of society over its members, and by a wise estimate of the probable effect of the means employed. In most ages of the world, men seem to have imagined their rightful power over their fellow men absolutely unlimited, and have inflicted punishment upon the violators of the law apparently without regard to any other consideration than their own pleasure, and the degree of guilt they have attributed to the offender. Acting with this apprehension of their own unrestricted power, they have, at the same time, exhibited the most narrow acquaintance with the almost infinite variety of means of punishment. They have confined themselves very much to the effects of physical suffering, as if that were the sole remedy which could be advantageously applied to moral depravity; a depravity often increased, if not caused, by the temptations to which physical suffering has itself exposed men. It has happened, too, in this, as in so many other human pursuits, that the end has been forgotten in attention to the means; and the object has appeared to be rather secretly to harass and oppress the subjects of punishment, than either to deter others from the commission of crime, or to amend the habits of the guilty themselves. None would be prevented from the commission of crime by penalties which were unknown; and, in the extreme depression of every physical and mental quality, it were absurd to expect any reformation of the unfortunate subjects of human severity. In all ages and nations of which we have any record, from the most refined people of ancient times to the most civilized of a more modern era, have such extremes of severity been used in the punishment of criminals as justly to deserve the appellation of *cruelty*. Torture, in every horrible variety; chains; stripes; solitary confinement in darkness, dampness, and idleness; promiscuous crowding of offenders, of every degree of guilt, in the same loathsome, pestilential, narrow vaults, insufficient and unwholesome food; filth, illness of the body, and sickness of the soul,—are some of the evils which have, in every age, been wantonly, carelessly, or ignorantly inflicted upon the violators of law; and, what is worse, they have been inflicted upon those who have violated no law; upon many who have been proved innocent, after suffering the infliction of some or all of the ills enumerated in this atrocious catalogue, and upon many whose imprudence alone has exposed them to the vengeance of an equally imprudent creditor. Society has, unquestionably, a right to punish the offenders against its laws, and against those of God; but has it, under any circumstances, a right to inflict such suffering as we have named? Has it a right to trifle with or endanger the health, the intellect, or the remaining principles of any, even the worst, of its members? It requires no metaphysical examination of the reasons on which the just and necessary power of society is founded, to answer in the negative. All feel that the proper adaptation of the means to the just end of punishment ought to be constantly kept in view. A striking illustration of the truth of this remark may be found in the universal outcry of horror and indignation, which was heard throughout the civilized world, when Howard disclosed the misery every where suffered by the prisoner; in the guilty consciousness with which those who exercised control over prisons universally shrunk from the disclosure of the atrocities committed under their authority, or, at best, allowed by their negligence; and in the immediate formation of associations to promote the necessary reform in the construction and government of prisons. From the year 1777, when Howard's work on the state of the prisons in England and Wales was first published, may be dated the origin of the study of the best system of prison discipline. There were, indeed, previous noble examples of attention to those who were sick and in prison, but it then became a subject of general interest. The effect of Christianity in softening the character, and meliorating the condition of men, had been perceptible, even in the treatment of the culprit; and, from time to time, there had arisen in the world men distinguished for the kindness they exhibited to those to whom kindness was almost unknown. The names of Carlo Borromeo, Claudius Bernard, and St. Vincent de Paul, ought never to be forgotten among those who have shown mercy to the captive. But Howard deserves still greater veneration for his persevering philanthropy and entire devotion to his noble object. The sphere of his exertions was not limited to his immediate neighborhood, but extended first throughout his native land, afterwards to adjoining kingdoms, and embraced, at length, the whole of Europe.

Nothing more was necessary than to witness the state of abject misery existing in prisons, in order to perceive the necessary remedy, in many cases. Thus the evils arising from crowded and filthy rooms, and from want of circulation of air, could be prevented only by a better construction of the buildings; while those arising from the exaction of fees from the prisoner, and from the sale of liquors by the officers, could be remedied only by a new system of discipline. Many of the ideas, therefore, which have been since acted upon, in the construction and government of prisons, were suggested by Howard, while experience has produced some improvements in his plans. It cannot be said that any regular system of prison discipline was introduced by Howard; nor has it even yet been carried to the perfection which may reasonably be expected; but the progress already made affords the greatest encouragement. It would not be easy to trace this progress with exactness, assigning to each laborer in the cause his due share of merit; nor is it necessary; for there is no great difficulty in discovering the general remedies for the various evils of imprisonment. The essential requisites in a prison are obviously security of construction and healthiness of situation; and, in its management, classification, oversight, labor, and instruction. It is in the previous arrangements for securing these advantages, and in the practical application of these general principles, that the difficulties lie; and so numerous are these difficulties that great diversities of feeling and opinion have arisen; and very few have been found to agree in the details for carrying into effect a general system. The very first attempt in England to introduce a practical reform in the construction and management of prisons failed, for want of unanimity in the commissioners appointed by parliament as to the location of the new establishment, though Howard himself was one of the board. From that time to the present, no uniform plan has been generally adopted in England; and, though somewhat more progress has been made in this country, there is still an ardent though amicable controversy between those who urge the expediency of solitary toil and the advocates of united labor. Something may be learned even from the failure of any scheme; but as the results of a more successful system are still better sources of instruction, we shall present our readers with a view of the rise and progress of the plan which is now beginning to be generally adopted in the U. States, and which affords such encouragement to the hopes of the philanthropic.

At the very time when Howard was devoting every power of his mind and body to the discovery and disclosure of the evils of imprisonment, the society of Friends in Philadelphia, acting on the principles of the wise and benevolent founder of their sect, were endeavoring to abolish the use of some of the cruel and injudicious modes of punishment then practised (such as the pillory, the scourge, &c.), and to substitute for them, as well as for capital punishment, the milder, and, as they believed it would prove, more efficacious measure of imprisonment for a longer or shorter period, according to the nature of the offence. Their efforts were interrupted by the revolutionary war; but, after the adoption of the Federal constitution, they again urged their views upon public attention with so much perseverance as to succeed in a great part of their object; and it is said, by one well qualified to judge, that, "so mature were the views of the early reformers, that, had they been fully carried into effect, many of the evils afterwards experienced would have been avoided."* They so far succeeded as to impress upon the community the propriety of commuting the system of punishment previously in use for imprisonment, excepting in the case of a few of the most atrocious crimes, for which death was still to be inflicted. For some years this scheme was regarded as a triumph of humanity. It saved the lives of many, and the infliction of a gross and unwise corporal punishment upon more. It was at first much dreaded by the criminals themselves; and the labor, which was intended to constitute part of their punishment, was found to relieve the state from a great portion of the expense which was anticipated, and had been regarded as the greatest objection to the plan. It extended gradually through most of the states of this Union, and was, on all hands, applauded as a cheap and efficient substitution of correctional discipline for cruel inflictions. After a time, however, it became apparent that the guilty were not reformed; the dread of the state prison wore off; recommitments multiplied; and from the facilities of communication which existed among the prisoners, most of them came out worse than they went in; while the system of stint and over-stint, by which they were permitted to labor for their own benefit, after performing a certain task for the state, enabled them to leave the prison supplied with the means of new roguery, or with a fund for subsistence till the approach of winter, perhaps, rendered it convenient to secure a comfortable maintenance in confinement by the commission of a state prison offence. As prisoners increased in number, and became, by their mutual action, more and more corrupt, and, by a natural influence upon the character of many of the inferior officers, were allowed more extended privileges, the expense of these establishments increased, so as to become greatly burdensome. It was generally acknowledged that crime had not diminished; it was believed by many, and feared by most persons, that the penitentiary system had failed. Still the public mind revolted against recurring to the old system of punishment, or relinquishing a scheme which, for twenty years, had been the subject of general encomium. There was, perhaps, a morbid sensibility upon the subject, which was disposed to make the condition of the guilty too desirable in many respects; but this served the purpose of stimulating the efforts of the wise and discerning to produce some plan which should combine a proper degree of lenity with a just and necessary severity. Much was written upon the subject, both in England and in this country; many experiments were tried by our legislatures, and the general current of opinion seemed to be inclining to a system of strict solitary confinement. On this idea, the construction of the Auburn prison was begun in 1816; and, in 1821, an act was passed by the New York legislature for subjecting convicts, either wholly or partially, to solitary confinement, according to their degree of depravity, and also requiring that *each prisoner should be lodged in a separate cell*, as soon as there was a sufficient number of cells. This was, perhaps, the most important step in the introduction of an improved prison discipline. It is, at least, one which is indispensable wherever any attempt is to be made towards the introduction of any valuable plan of correctional punishment. The means of solitary confinement at night, and either of solitary labor, or of labor in small classes together during the day, are essential to the existence of the system of prison discipline, which is now most highly valued. Other things are also necessary, but these lie at the foundation of the system.

In the year 1824, Messrs. Hopkins, Tibbets and Allen were appointed commissioners to visit the state prisons of New York, to examine the state of their discipline, and to report upon any improvements, which, in their opinion, ought to be introduced. The result of the wise labors of these excellent men was the perfecting of a scheme of prison discipline, which had been partially begun already at Auburn, and which is substantially the model on which the reforms attempted in most of the other states have been conducted. It consists, principally, of the solitary confinement of the convicts during the night, and the time of taking their meals; of labor during the day; and of silence at all times, except for the purposes of communication with their keepers; they are never allowed to address each other, not even by signs or looks. The strictest supervision is, of course, necessary, to secure uninterrupted and industrious labor, and to prevent the evil communications which would otherwise abound. The advantages of this system are, that it affords opportunity alternately for silent and solitary reflection, for the salutary action of the mind upon itself, and for that mental activity upon other objects, and that relaxation from the severer task of thinking, which is at once necessary to preserve the healthy state of the mind and body, and to give efficacy to the meditation which is thus encouraged. But this alternation of labor and reflection is not the only, nor, perhaps, the greatest advantage of the plan. The unaided thoughts of the corrupt and hardened might recur to topics which would be any thing but salutary; but, in the silence and darkness of night, the voice of religious instruction is heard; and if any circumstances can be imagined calculated to impress the warnings, the encouragements, the threats, or the hopes of religion upon the mind, it must surely be those of the convict in his cell, where he is unseen and unheard, and where nothing can reach him but the voice which must come to him, as it were, from another world, telling him of things which, perhaps, never before entered into his mind; telling him of God, of eternity, of future reward and future punishment, of suffering far greater than the mere physical endurances of the present life, and of joy infinitely beyond the pleasures he may have experienced.—These instructions frequently discover to the guilty tenant of the cell, what seems often not to have occurred to him, the simple fact that he has a spiritual nature, that he is not the mere animal which his habits and hitherto uncontrolled propensities would indicate. And this is a discovery which, alone, may and does effect a great change in a man's whole character. He feels that he is a being superior to what he had thought himself, and that he is regarded as one having higher powers than he had supposed. This first step in the path of improvement is a prodigious one; a new ambition is awakened, and the encouragement of it is the principal thing now needed. This encouragement it is part of the system to give. The spiritual guide of this outcast flock must study the character and previous circumstances of every individual; he must adapt himself and his instructions to their wants; he must teach the ignorant, arouse the careless, touch, if it be possible, the impenitent, lead the willing, and be "all things to all men, if by any means he may save some." To the morning and evening services of devotion are to be added the more direct and elaborate instructions of the Sabbath, and the no less important influences which may be effected in private intercourse with the convict. The Sunday school may communicate the most valuable information on many subjects; and every improper influence may be, and ought to be, absolutely excluded. It is this system of addressing the intellectual and moral qualities of man, of treating the convict as a being of a compound nature—both physical and spiritual—that constitutes the peculiar merit of the prison discipline, which is now about to be introduced. No new discovery has been made, unless it be considered one that criminals may sometimes be made susceptible of moral influences. It is only the adaptation of well-known principles to a new class of subjects. It is merely carrying to the lowest, the most ignorant, and the most degraded class, that plan of education which is nearly universal among us, and which should be entirely so every where. The exercise of mere force, which has been so long considered the only means of punishment, is at length yielding to the rapidly strengthening conviction of the superior efficacy of moral influence.* There are yet many to whom this notion appears strange; who are not convinced that the hardened criminal can be persuaded by any thing but stripes or chains; by physical suffering, in short, in some one of its many hideous forms. To this it may be replied, in the first place, that if nothing else can affect him, corporeal inflictions alone certainly will not. Bodily suffering, imposed by his fellow mortal, has rarely awakened in the criminal any thing but fear, hatred, the obdurate spirit of revenge, or despair, sullen, dark and terrible. In the next place, experience has proved that those who are, apparently, the most hardened in a course of crime, may be operated on, may be positively reclaimed, by the use of moral and intellectual means. For the evidence of this fact, we refer to the Third Report of the Boston Prison Discipline Society, where it is stated in a manner which seems to us conclusive. Again, it may be remarked, that even on the supposition that the experienced villain could not, by any possibility, be reformed, that the crimson dye could not be washed out, it by no means follows that moral influences may not be usefully applied within the prison walls. The class of incorrigible reprobates is small. The great majority have committed their offences, either through deplorable ignorance, which may be removed; through the power of temptation, against which they may be strengthened; or through the inexperienced rashness of youth, which may be better trained.*

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* A Treatise on State Prison Punishments, by honorable S. M. Hopkins.

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* It may be proper to say, that, by the term *moral influence*, we mean not merely the effects which may be produced by the inculcation of correct moral principles, but the influence of every motive that can be addressed to the understanding or the affections.

It may be imagined by those to whom the subject is new, that the application of these means must be expensive. But, in fact, the direct expense of prisons, conducted upon the former system, is ten-fold greater; and the indirect cost, or that which arises from the education in crime, given by that plan of mutual instruction in villany, is incalculable. The labor, which is an essential ingredient in the scheme, may, by proper management, be made so productive, that the prison shall support itself, including the salaries of all the officers; and in many cases, in this country, much more has been done, a large revenue accruing to the state from the labor of its convicts. We say in this country, for we have often seen and heard the remark, that such effects are not to be expected in other countries, where the value of labor does not bear so high a proportion to the necessaries and luxuries of life. We are inclined to think that this difference is exaggerated in the minds of many; but allowing it to exist to the fullest extent, we should still say that, wherever the labor of an able-bodied man will support him without, it may be made, by judicious management, to support him within, the walls of the prison. The distinction which is made between the productiveness of voluntary and that of involuntary labor does not hold; for it is one of the effects of the Auburn discipline, to make the labor voluntary; and we venture to say, that under no circumstances, not even where the stimulus of profit is applied in its greatest extent, is there better evidence of active and willing industry than in our well conducted prisons. What is done in one place may be done in another, by skilfully adapting the labor of the prisoners to the wants of the community, of which they form a part, and to the personal powers and knowledge of the convicts. But it is not upon its economy that we should choose principally to rest the claims of the Auburn system of discipline to general favor. It certainly should not be forgotten or omitted, in the enumeration of its advantages, and it may be an important inducement to its introduction. But of what moment is it, compared with the great object of relieving society from insecurity of life and property? Of what importance is it, compared with the still more glorious purpose of reclaiming the wandering, the lost, the outcast wretch, who may yet be made the source of the joy which is felt over the repenting sinner? It is not a mere fiction of the imagination, that such effects may be produced. They have been produced. It is well known that rogues have a great dread of the prisons where this system is introduced; that they resort to other places to commit the offences which would expose them to its restraints; and that many have been restored by it from habits of profligacy, to those of, at least, comparative virtue.* Such results as these are of incalculable value. They cannot well be estimated by the cost of the means of producing them; and were it more expensive than other systems, this would be but a trifling objection to a plan which resulted in the attainment of such beneficent ends. But, as the facts are, no sufficient objection can be made to the endeavor to introduce a system which, after ten years' trial, has produced no evil and much good. The more it is extended, and the more faithfully it is carried into execution, the more will its excellent tendencies be developed; and it is only from the imperfection of the agents, or the slight degree of attention which is given to the subject, that any doubt can arise as to its utility, or its practicable nature. The most important requisite to its successful execution is, the suitable qualification of the superintendent; and it is no ordinary combination of powers and qualities, which will render a man fit to take charge of the refractory subjects of legal punishment. He must be one whose moral correctness of deportment is above suspicion; he must unite to sagacity in the discernment of character, knowledge of the world, and an acquaintance with the most suitable species of mechanical labor, the best manner of executing it, and the proper results to be obtained from it; he must combine firmness with essential kindness of disposition; he must be a man of an exact and methodical mind; and, above all, he must be willing, in the spirit of Christian benevolence, to devote himself exclusively, and with singleness of purpose, to the great objects which may be attained by his agency. These are, certainly, high qualifications; but they are not so uncommon as to justify any thing like despair of obtaining them. The end to be gained is worth the exertion necessary to secure the means. The subordinate officers of a penitentiary should also be men upon whose integrity and competent acquaintance with the department they have undertaken, unshaken reliance may be placed; men whose characters have been proved trustworthy. By officers of such merit, much may be done towards introducing a valuable state of discipline, even under unfavorable circumstances. But in order to secure the great advantages of the best system of prison discipline, it is equally necessary that the buildings should be constructed with a view to its introduction. For this purpose, the plan which seems to us the best, is that which was first adopted at Auburn, and has since been imitated in many places. One of the best applications of this plan has been made in the new state prison at Wethersfield, Connecticut, of which a plan is subjoined. (See plate, &c. p. 348.) The workshops connected with the dormitories may be arranged according to the kind of labor to be exercised, and the judgment of the managers or superintendent. We have observed that this is the plan which appears to us the best; but in order that the reader may have some means of judging of the comparative merit of this scheme, and that of solitary labor, we shall also state the plan of the prison which has been begun, upon a vast scale, at Philadelphia, with the intention of confining every prisoner to his cell, excepting for a little time daily to be given to exercise in the open air, in a court connected with his cell. The following account and observations are taken from the Third Report of the Boston Prison Discipline Society:—"*Construction.* The yard wall, which is built of stone, thirty feet high, encloses nearly twelve acres. The building for the keeper's house, and the offices of the prison government, makes a part of the south wall, on each side of the centre. The magnificence of this part of the prison may be inferred from the fact, that the yard wall cost about $200,000. On the centre of the yard is erected the observatory, and on seven lines, diverging from the observatory towards the wall, the blocks of cells. Two rows of cells are arranged on each of these lines, with a passage between them. The cells are one story high. Connected with each cell, on the outside, is an exercising yard. The entrance to the cell is through the exercising yard. The place of observation for the keeper over the prisoner, is through a small orifice opening from the cell into the passage, which may be closed at pleasure by the keeper, and which is intended to be kept generally shut. The only mode of seeing the prisoner, while confined in his cell, if the doors are shut, is through this orifice. When he is let out of his cell into the exercising yard, he may be seen either by opening the door of the exercising yard, or by walking on the top of the wall over the exercising yard. The wall of the exercising yard is so high, that he cannot be seen from the principal observatory, in the centre of the large yard, unless the observatory is raised to a height far above that contemplated in the original plan. The entrance to the cell, from the exercising yard, is secured by double doors, one on each surface of the wall; the inner door of grated iron, and the outer door of plank. The orifice between the cell and the passage, which is large enough to admit the face of a man, is secured by double doors of plank."—"The estimated expense of the whole establishment, when completed, on the original design, is $500,000. And when it is completed, it will accommodate only 250 prisoners. The expense of the new prison in Connecticut, for the accommodation of 136 prisoners, was estimated at $30,000, and three fourths of the work has already been done within the estimate." An obvious remark upon these statements is, that economy is decidedly favorable to the Auburn plan; and although, as we have remarked, economy is not to be regarded as its principal recommendation, yet, unless some decided advantage is to be gained by a more expensive system, it ought to be preferred. Many evils were

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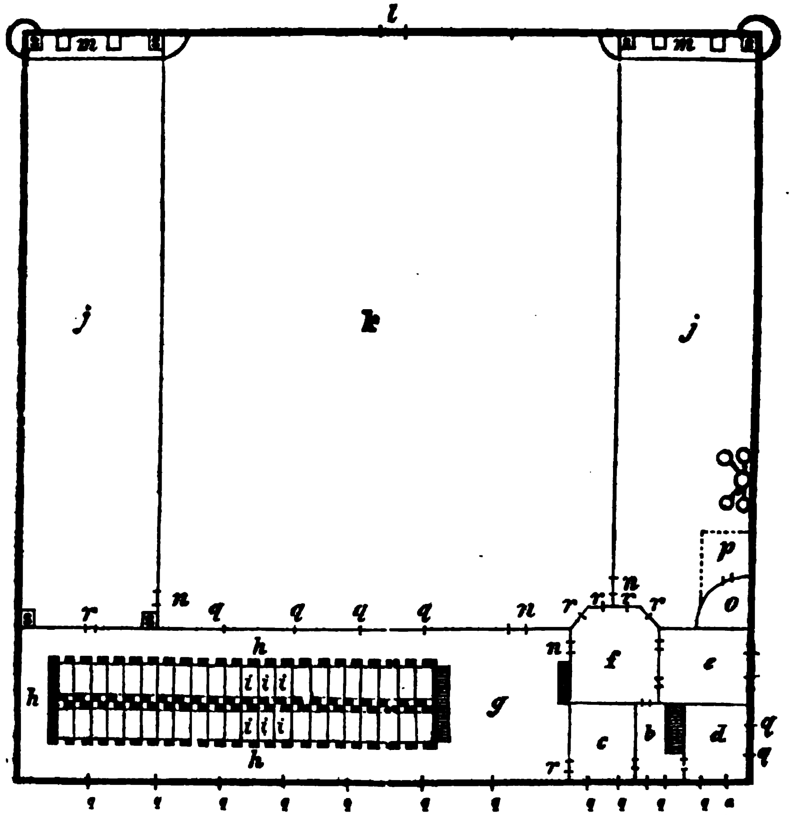
* "After spending much time among prisoners," says Mr. Hopkins, "and seeing much of the desolations of crime, I have not ceased to feel that, bad as these men are, there is much in their condition to call for our pity, even without looking to the realities of a future retribution. Certainly their very crimes deserve our commiseration. When we see some left without guidance or instruction in youth; others stupid and gullible, or decoyed into vice by lures of which they could not be aware, or, in possible cases, driven into criminality by pressing want or danger; it is impossible to withhold from them the tear of compassion. I have visited those who, in an agony of grief, told the story of their own ruin. Very few of them are without the sympathies of our common nature. Many at Auburn are often melted to tears under the preaching of an eloquent and able minister there; one who has told me, that, of all congregations, he delighted most to preach to prisoners. I have also heard them sobbing in great numbers, at a few words spoken to them in public, by Mr. Powers, in which he alluded to the situation and feelings of their friends. We must avoid extremes in judging of them. They are not the innocent victims of unjust laws; but neither are they all demons. They are men, though greatly fallen. They deserve punishment. They ought to receive it, not less for their own benefit than for that of society."

* See Fourth Report of Boston Prison Discipline Society.

Ground View of the new State Prison at Wethersfield, Conn.



a, front door; *b*, entry, 10 feet wide and 20 feet deep; *c*, keeper's private room, 20 feet square; *d*, keeper's dining-room, 20 feet square; *e*, keeper's kitchen, 20 feet by 25; *f*, guard-room, 25 feet by 25; *g*, chapel, 35 feet by 40; *h*, *h*, *h*, area around the cells, 10 feet wide, and open from the ground to the roof; *i*, *i*, *i*, cells, 7 feet by 7, and 3½ feet wide; *j*, *j*, shops, 38 feet wide and 160 feet long; *k*, yard, 160 by 124 feet; *l*, yard gate; *m*, *m*, sentinel boxes, extending from one side of the shops to the other, and commanding a view of the external walls, of the interior of the shops, and of the interior of the yard; *n*, *n*, doors; *o*, oven; *p*, baker's stand; *q*, *q*, *q*, *q*, *q*, *q*, windows; *r*, *r*, *r*, *r*, points of observation and inspection; *s*, *s*, *s*, *s*, *s*, water-closets, &c.; *o-o-o*, steam cooking apparatus; the well and rain water cistern to be placed under the guard-room, keeper's kitchen, and that part of the shop containing the oven, so as to admit pumps and furnish the water to all these apartments at the same time; that part of the shop containing the oven and cooking apparatus to be used as a kitchen for the prisoners; the shops, *j*, *j*, to be entirely open from the ground floor, or pavement, to the roof, and from the main building to the sentinel boxes, so that the inspection may be uninterrupted from the points of observation, *r*, *r*, *r*, and also from the sentinel boxes, *m*, *m*; these shops are intended to accommodate either shoemakers, tailors, coopers, or weavers, all of whom in one shop may be inspected from the guard room, and all in the other from the point of observation in the main building; to be 200 feet long and 40 feet wide; the external wall of this building 2½ feet thick at the foundation; the centre wall between the cells 2 feet thick, having a ventilator 4 inches in diameter in the wall from each cell to the garret or roof; the partition walls between the cells, 1 foot in thickness; the wall between the cells and the area 18 inches in thickness; the doors, either of oak plank or rolled iron, 6 feet high and 20 inches wide, having an open grate, in the top, 16 by 16 inches, with orifices 2 inches in diameter, between bars of round iron, 1 inch in diameter, crossing each other at right angles; the windows in the external wall and the windows of the guard-room to be 3½ feet by 6, secured with a grate made of iron bars, 1 inch in diameter, crossing each other at right angles, 2 inches asunder; the height of the external wall of the main building to depend on the height of the breast-work of cells, which may be 4 or 5 stories; each story of cells to be entered from a narrow gallery 3 feet in width, to be connected with a stair-case at the side of the chapel; the hospital to be over the guard-room, of the same dimensions with it, to be entered from a stair-case at the side of the chapel; the apartment for females to be in the 3d story, over the guard-room and keeper's kitchen, containing a room for labor over the guard-room, and as many small dormitories over the keeper's kitchen as are necessary, of the same form and size with the other cells; the entrance to the female apartment to be from the hall of the keeper's house; the orifices in the guard-room door, in the hospital door, in the wall from the keeper's private room to the chapel, in the wall between the female apartment and the chapel, and in the door from the main building into the yard, and in the wall between the main building and the west shop, to be 12 inches square, secured by an open grate, like those on the cell doors, and to be closed with an iron slide; the windows of the shops, in the wall towards the yard, to be 4 feet square, and two feet asunder, and 2½ feet from the floor, and, also, in the roof towards the yard, one continued row of 7 by 9 glass; the interior wall of the shops to be 7 feet, in height, and the yard wall 20 feet in height and 2 feet in thickness. Scale, 1 inch to 50 feet.

anticipated as likely to arise from imprisonment on the Philadelphia system, which was originally that of absolute solitude without labor; but the introduction of labor remedied some of these, and others seem not to have occurred. We learn from the last report of the Inspectors of the prison, dated January, 1832, that "the general health of the prisoners has been good," and that "the opinion heretofore expressed, that the practical operation of this institution is beneficial to the moral, and not injurious to the physical, powers of the prisoners, has been confirmed by another year's experience and observation." It is thought, also, that "the prisoners can generally maintain themselves by their labor in solitude." In all this, however, we perceive no advantage of this system over that of united labor. What is here said of the Philadelphia plan may be said also of that of Auburn, and, in some respects, with much greater force; and there are some obvious points of inferiority, besides that of increased expense, the effect of which is not counteracted, so far as we can yet perceive, by any decided advantage. Thus, for instance, there is no chapel, and there can, of course, in conformity with the plan of total seclusion, be none of those public services of religion, which, by judicious management, may be rendered so serviceable in the great cause of the reformation of the unhappy convicts. Many excellent kinds of hard labor cannot be practised in solitude; and thus the chances of preserving health* are diminished, as well as the revenue arising from the labor of the prisoners. The difficulties of supervision are also much greater. Perhaps further experience may show some great benefit which will be derived from absolute solitude, that will more than counterbalance these and other disadvantages, which might be enumerated. But, as far as our information now extends, we are disposed to recommend the Auburn plan, as possessing superior advantages of economy, and greater facilities for instruction, discipline and healthful labor.

It would extend this article beyond all reasonable limits, were we to go into the details of the system of discipline which may be most advantageously practised. Many of these details, too, may and must be varied by the circumstances that occur in the prison, or in the community; and much must, in all cases, be left to the wisdom and the ingenuity of the superintendent, combined with the results of his practical experience. For all the details which can be usefully communicated in writing, we must refer to the reports of the Boston Prison Discipline Society, which contain a very great amount of most valuable information, and are highly honorable to the intelligence, the perseverance, and the elevated principles, of their author.† In conclusion, we shall refer to some of the points which are either material to, or intimately connected with, the improvement of the system of prison discipline, and which require more attention than has hitherto been bestowed on them. The first and most essential is, the provision for the religious and intellectual instruction of the convicts. There is not a prison in this country, and we know of none elsewhere, in which what we should consider adequate provision is made, to secure the entire services of an able and faithful clergyman. Yet it cannot be doubted, that the labors of such a one may be, must be, considered likely to contribute as much as any thing in the whole scheme, to that reformation of character which is contemplated as the great object of all the means of prison discipline. And is it too much to ask, is it too costly an effort, to furnish a faithful teacher of the best principles and highest motives to the sunken and degraded subjects of the authority of the laws? The discipline of the penitentiaries ought to be regarded merely as a part of the great system of public instruction, which it is the boast of this country to have extended farther than others. And as the subjects of this discipline are advanced, not only in life, but in vice; as they have learned much which they ought to unlearn,—the difficulties of instructing them are increased, and even a more liberal provision should be made for them than for others. We lament to say it is, in fact, the reverse; and the best system of prison discipline cannot be said to have been fairly tried, till the scanty pittance provided for the support of a clergyman shall be so augmented as to secure the whole time and talents of competent laborers in this important field. The effects of this plan, as a system, cannot be justly exhibited, till it shall have been vastly more extended. It should be carried not only into all our penitentiaries, but into those scarcely inferior seminaries of iniquity, the county gaols. It should be made, as far as the nature of the case will admit, universal, and then it may be judged of fairly; and hardly till then. Its benefits may be made immeasurably greater than have yet been experienced from it, and in a vastly greater ratio of increase than is indicated by the mere number of similar institutions. Connected with the system of internal discipline is the length of time for which every criminal is to be under its influence; and this brings us directly to the criminal code. It would be highly desirable, and in the United States, not very difficult to effect, that each crime should receive the same degree of punishment in different states and countries; from which there should be little chance of escape, and after conviction no hope of pardon. The power of pardoning has been so much misused, and the danger of its abuse is always so great, that we look upon it as a thing which might very safely be dispensed with. As a part of the same grand system of universal instruction, and a part most highly important to the general welfare, the houses of reformation for juvenile offenders ought to be favorably regarded. They are conducted on the same general plan as the prisons for older violators of law, with such modifications as adapt it to the tenderer years, and more docile dispositions of these youthful subjects of punishment. Nothing can have a greater tendency to reduce the number both of criminals and prisons, than the general establishment of houses of reformation. It may not be improper to add, that the reputation of our systems of prison discipline is high in Europe, and soon after the great changes made in the French government by the revolution of July, 1830, two commissioners were sent by that government to examine the prisons in the United States, with a view to the improvement of those in France.

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* From the same report of the inspectors of the Philadelphia prison above referred to, we learn that the average of deaths that have occurred, from all causes, during the last year, is rather less than six per cent. on the whole number of prisoners. This exceeds the average of some other prisons, for the same period; thus at Charlestown (Massachusetts), and Auburn, the per centage is two and a half, and at Wethersfield, Connecticut, and Sing Sing, it is three.

† The reverend Louis Dwight, secretary of the society.

Privateer; a vessel of war owned and equipped by private individuals to seize or plunder the ships of an enemy. Such a vessel must be licensed by government, or she is a pirate. It is a matter of just astonishment that a species of warfare so repugnant to all our better feelings, and so inconsistent with the respect paid to private property in warfare on land, should so long have prevailed. It is a relic of the plundering habits of barbarous times. For several ages after the irruption of the northern barbarians, war and plunder might almost be considered as individual rights. Every one might seek his fortune by predatory incursions upon the enemy, by land or sea. The infidel powers bordering on the Mediterranean covered that sea with small piratical vessels, and the Christian states, partly in self-defence, partly from hope of gain, fitted out small cruisers, or armed their merchant ships. No public commission was required. The first check to the practice of private plundering upon sea was by confining the right to those who received letters of marque or reprisals. These were issued upon the petition of a subject who complained of injustice done him by some foreign prince or subject, and they empowered the party to obtain satisfaction by seizing the goods of any subject of the offending state. It does not seem to have been considered necessary to be provided with letters of reprisals till the fourteenth century, and no mention is made of them in treaties prior to that time. It is probable that, in the fifteenth century, commissions began to be issued to private subjects in time of war similar to those which were granted for making reprisals in time of peace; but the practice of granting commissions to privateers did not become general before the end of the sixteenth century. The first instance in which their aid appears to have been considered important in carrying on war was in the contest between Spain and her revolted provinces of the Low Countries, which began in 1569. In 1570, the prince of Orange, in the hope of replenishing his impoverished finances, by seizing on the money sent from Spain to the Netherlands, issued commissions to many of his adherents, authorizing them to cruise against the ships of Spain. A considerable fleet was equipped, and, increasing daily in numbers, they soon became terrible by their depredations, not only on the commerce of Spain and the Netherlands, but on that of their own and of other countries. It is said that their country suffered from them not less than from the despotism and cruelty of Alva. The French, however, were probably the first to send out in considerable numbers these scourges of the sea. Their code exhibits the most ancient regulations concerning privateers, and their maritime laws have always been the most severe against the commerce of neutrals. In 1555, the people of Dieppe fitted out nineteen ships and six brigantines, in consequence of having received a commission to attack several Dutch ships of great burthen, returning from Spain. Spain and England, shortly after the depredations committed under the commissions of the prince of Orange, issued commissions to great numbers of privateers. The expeditions of Drake and Frobisher are said to have been of this nature. The Dutch war for independence, which began in 1569, did not end till 1648. In that long contest, the use of privateers became familiar, and has remained so since in all wars between maritime countries, and governments have greatly encouraged them. The evils suffered from them and the complaints of neutrals have been so great, that various expedients have been resorted to for checking their excesses; but it has been hitherto found impossible to impose effectual restraints upon forces called into action by motives so sordid. Considering the injustice and immorality of privateering, the many seamen thrown by it into prisons, and thus taken from the service of their country,* and the distress thus brought upon their families; the difficulty of procuring sailors to man the fleets, or defend the coasts, when they are lured by the hope of plunder to embark in long and distant cruises; the ill will and jealousy excited in neutral nations by the vexation to which their commerce is exposed from it; the murders and piracies which it inevitably produces, and the injury done to the morals of the communities engaged in it,—it is strange that the example of the U. States, in their treaty with Prussia, in 1785, has not been more imitated. That treaty provides that "neither of the contracting powers shall grant or issue any commission to any private armed vessels, empowering them to take or destroy trading vessels." (For the laws respecting captures by armed vessels, whether public or private, see *Prize.*)

Privet (*ligustrum vulgare*); a European shrub, allied to the lilac, now naturalized in some parts of the U. States. The leaves are lanceolate, entire, opposite, and smooth; the flowers small, white, slightly odorous, having two stamens and a single style, and disposed in terminal panicles. The berries are usually small and globular, purple or black, and remain on the tree during the winter season.

Privilege; any kind of right, prerogative or advantage attached to a certain person, condition or employment, exclusive of others.—*Privilegium canonis* is the protection of a Roman Catholic clergyman, by which every person is excommunicated who strikes him. The pope only can suspend this excommunication. The word *privileged* was very frequently used in the French republic, as the odious privileges of certain orders mainly contributed to produce the revolution.

Privy Council in Great Britain. (See *Council, Privy.*) *Orders in council* are orders issued by the king, by and with the advice of his privy council, either by virtue of the royal prerogative, and independently of any act of parliament, or by virtue of such act, authorizing the king in council to modify or dispense with certain statutory provisions, which it may be deemed expedient, in particular conjunctures, to alter or suspend. When a permission is to be given to a particular individual, it is usual to grant it by license; but orders in council are of a more general nature, and contain dispensations or prohibitions extending to a whole branch of commerce.

Prize.* By the term *prize* is generally understood any thing captured in virtue of the rights of war (*jure belli*). Property captured on land is usually called *booty*, and is generally disposed of at once by the commanding general, or reserved for the disposal of his sovereign, who is accustomed to bestow and distribute it according to his discretion. Few rules are therefore to be found in treatises of public law on the rights of war, in regard to captures on land. The conqueror, indeed, generally respects private property from motives of policy or clemency. He observes, or ought to observe, the terms of capitulation, if there are any; and, ordinarily, he does not give up any place which is conquered to pillage or sack. But property captured in battle of a general or movable nature is commonly subjected to immediate distribution; and the principal question which arises is how it is to be treated upon recapture. Is it to be restored by the law of postliminy (*jus postliminii*) to the original owner, or does it belong to the recaptor? In general, upon principles of strict law, if the capture has been absolute, and the possession complete by the enemy, it is deemed his property, and the title of the original owner is divested, so that he cannot reclaim it. But most nations have introduced into their own laws some modifications of this principle, and, in regard to their own subjects, have given a right of restitution to the original owner, upon his making some compensation. For the most part, however, these modifications are applied more extensively to captures at sea than to captures on land. In regard to maritime captures, a very different course has been pursued by all nations, in modern times, from that which governs in cases of captures on land. As all nations have an equal right to navigate the ocean, and to carry on commerce with each other, belligerents are bound to respect the rights and property of neutrals, whether navigating the ocean or engaged in trade in foreign ports. The right of belligerents to capture the property of their enemies on the sea is admitted, as well as their right to prevent any frauds, or violations of the law of nations on the part of neutrals. But these rights are limited, and must be so exercised as not to trench upon the independence or rights of other nations. Now it is obvious that it is extremely difficult, if not wholly impracticable, to ascertain, with entire certainty, what ships and cargoes sailing on the ocean, or found in belligerent ports, belong to enemies, and what to neutrals. Yet it is the duty of the belligerent sovereign, who exercises the power of capture, to abstain from seizing the one, while he may lawfully seize the other. Some mode of ascertaining the character and genuineness of each must therefore be devised, in order to prevent the abuse of the power, and to secure to neutrals a just protection. The belligerent acts at his peril, and is responsible for every abuse; and, if the wrongs are at once flagrant and frequent, they inevitably produce that state of national irritation and national injury which are the general causes of war. Hence arises the necessity of instituting some tribunals to take cognizance of maritime captures, to ascertain their validity, and, after suitable proceedings, to pronounce a decree of condemnation or acquittal. Accordingly, in modern times, it is settled, as a part of the law of nations, that every belligerent has a right to establish tribunals of prize, to examine into all maritime captures, and judicially to decide upon their validity. The final sentence, when pronounced, is deemed the act of the sovereign, deliberately adopted, and he thereby becomes responsible to all foreign nations for its correctness. But this right would be of little practical value, if other nations were not bound, so far as the property in controversy is concerned, by such a sentence. Hence, as a corollary flowing from this principle, it is another well-settled principle, that the courts of prize of the captors have exclusive jurisdiction over all matters touching captures made under the authority of their sovereign; and the courts of other nations have no jurisdiction, or authority to inquire into, or to adjudicate upon them. And the sentence of a court of competent jurisdiction once pronounced becomes conclusive, and obligatory upon all the world. It changes the property, and devests the former title of the owner, if it is a sentence of condemnation; and all nations are bound to respect the new title acquired under it.—I. It being, then, a fundamental principle that, in matters of prize, exclusive jurisdiction belongs to the prize courts of the captors, whose sentence is conclusive upon all the world, we are next to inquire, under what circumstances this exclusive jurisdiction attaches. It is not permitted to any nation to assume to itself the final adjudication upon all rights of property in which the subjects of other nations are concerned, whenever a court of prize has undertaken to pass sentence upon it. Such a sentence is not obligatory, unless a rightful jurisdiction has attached to such court; and, therefore, in all cases where property, captured and condemned as prize, comes afterwards in judgment before the courts of other nations, and the title is controverted, the first question is, whether the court of prize pronouncing the sentence had jurisdiction over the property. The foundation of its jurisdiction is, that the property has been captured, and is in the possession of the captors, and capable of being reached directly or indirectly through the process of the court. Every court of prize, therefore, proceeds *in rem*, and, in order to maintain its jurisdiction, it must be capable of asserting its claim over the thing or over its proceeds. The jurisdiction, then, gained by capture is lost by a recapture, escape, or voluntary discharge of the property before the court has adjudicated upon it; and if, notwithstanding, it should attempt to bind the property by any subsequent proceedings, its sentence becomes a mere nullity. Upon this ground, it was formerly held that, in order to entitle a court of prize to proceed to adjudication, it was essential that the property or proceeds should be brought within the ports of the capturing power. But this rule was soon found, in practice, to be too narrow and inconvenient; and it is now well established, that it is sufficient that the property is in the possession of the captors in the ports of an ally in the war, or even in the ports of a neutral; for, by the capture, the captors acquire such a right and possession as no neutral nation is at liberty to devest or impugn. This rule is so inflexible that, even if a belligerent captures a neutral vessel and cargo, and brings it into the ports of the neutral nation to which the vessel and cargo belong, the courts of the latter are bound to abstain from all exercise of jurisdiction over the property, except so far as to inquire whether the captors are entitled to make the capture, or are mere pirates. And this leads to the remark, that the capture must be made in a place where it can, by the law of nations, be rightfully made by the belligerent. Every neutral nation has a right to an exclusive jurisdiction within its own ports, and over its territorial seas to the extent of a marine league on its sea-coast. A belligerent has no right to make any captures within those limits; for it is undertaking to carry on war within the neutral territory, which is a plain violation of neutral rights: so a belligerent has no right to equip, or arm, or man, his ships for war in any neutral port; and, if he does, it is the duty of the neutral to vindicate his own exclusive sovereignty. If, therefore, in either of these cases of violation of territorial sovereignty, or of illegal equipments, the captured property is brought within the neutral jurisdiction, it is the right and duty of the neutral to restore it to the original owner.—A prize court may not only lose its jurisdiction by circumstances occurring after it has once rightfully attached, but it may be incompetent from the locality of the exercise of its jurisdiction. Thus a prize court must sit in the country of the captors, or, at least, in the territory of a co-belligerent; for, if it sits in a neutral country, its sentence of condemnation will be deemed invalid, and, of course, will be disregarded as a violation of the proper duty of the neutral sovereign.

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* It is said that, at the close of the war terminated by the peace of Amiens, there were 30,000 French sailors in English prisons. It is well known what numbers of our seamen were thus lost to us for the time, in the late war with England.

* The importance of this subject to a commercial community is our apology for the length of the following article.

II. The next inquiry is, Who are entitled to make captures? In general, every belligerent sovereign reserves to himself the exclusive right to grant commissions to make captures in time of war. The object of this regulation is, in the first place, to secure neutrals against predatory warfare and piratical attacks; and, in the next place, to enable the sovereign to limit the operations of war, and control the persons who are engaged in it so as to secure a perfect responsibility to himself for any misconduct. But unless the sovereign actually prohibits any uncommissioned subjects from engaging in the war, they are not absolutely incompetent to make captures; for all the subjects of the hostile nations are deemed enemies to each other. But such captures are always made at the peril of the parties; and the uncommissioned captors acquire no interest therein, but the same are at the free disposal of the sovereign. Indeed, the general principle of the law of nations is, that all captures are for the sovereign; and no beneficial interest can be acquired therein by the captors, except by the grace and bounty of their sovereign. It is usual for the sovereign, in cases of public ships of war, as well as in cases of private commissioned ships, to give the captors, after adjudication, the whole of the proceeds of prizes, according to some stipulated mode of apportionment and distribution. But this is a mere act of grace, and not of duty. In cases of non-commissioned vessels, captures may certainly be made by them in self-defence, if they are attacked; and they are usually permitted to make hostile attacks and captures, which are not in mere self-defence. Indeed, so far as other nations are concerned, such captures are to be deemed lawful, and not piratical; though, if not authorized by their sovereign, the captors may incur an onerous responsibility to him. And, with a view to the exigencies of war, it is a general policy among sovereigns not to allow any rights to vest in the captors until after a final sentence of condemnation, so that, if any intermediate negotiations take place, the prizes may be restored without any infringement of the vested rights of the captors.

III. In the next place, Who are to be deemed *enemies*? and what property is liable to capture? In general, it may be laid down that all the subjects of the belligerents are to be deemed enemies to each other, and their property is deemed to belong to enemies; but the rule has some qualifications. In cases of prize, the question of enemy or not, depends, not upon the native or adopted country of the party, but upon his actual residence or domicil. (See *Domicil*, appendix, end of vol. iv.) He is deemed to belong to the country in which he has his actual residence or domicil. Hence a neutral domiciled in an enemy's country is deemed an enemy, and a subject of a belligerent domiciled in a neutral country is deemed a neutral; and the masters and officers and crews of ships are deemed to belong to the country, and to possess the national character of the ships in which they are employed, during the time of their employment. And the hostile character may be impressed upon a person who goes into a belligerent country originally for temporary purposes, if other objects of a more permanent nature become engrafted upon that original purpose. *Ambassadors* and *public ministers* are always deemed to retain the national character of their sovereigns; and so *consuls*, while they confine themselves to their mere official duties. But if they engage in commerce, so far as their commerce is concerned, they partake of the national character of their place of domicil. A national character which is acquired solely by domicil ceases with the change of that domicil; and the native character of the party is resumed, the moment he puts himself upon his journey (*in itinere*) to return home. Thus a belligerent subject, domiciled in a neutral country, ceases to hold the character of a neutral as soon as he is on his return to his native country, and becomes an enemy; and, *e converso*, a neutral domiciled in an enemy's country ceases to be an enemy upon his return to his own country. But mere residence in a neutral country is not always sufficient to protect the property of a party from being deemed hostile; for there may be a hostile character impressed upon the property by the mere nature of the trade in which the party is engaged. Thus if a party reside in a neutral country, but has an agent stationed in the enemy's country, who carries on trade there on his account, upon the same footing as a resident merchant and privileged trader, he will, as to such trade, be deemed an enemy. So if a neutral person is a partner in a house of trade in the enemy's country, the partnership is deemed hostile; and his neutral residence will not save his share in the concern from being liable to confiscation as enemy's property. But here the principle of reciprocity is not applied; for if an enemy be a partner in a house of trade in a neutral country, his share in the concern is not protected by the neutral character of the partnership; but his character as enemy attaches to it. There are many other cases in which traffic alone, independent of domicil, stamps upon the party engaged in it a hostile character. Thus if a party be engaged in the navigation of an enemy, or his ships sail under the flag, and pass, and papers of an enemy, the property so employed partakes of the hostile character. There are certain species of trade which are ordinarily confined to the subjects of a nation; and no foreigners are permitted to take part in such trade. Thus, before the late South American revolution, Spain prohibited all foreign intercourse with her continental colonies. In such cases of colonial monopoly, if, by special privilege or license, a foreigner should, *pro hac vice*, be allowed to carry on the trade; or if, under color of the names of subjects, he should secretly embark in it, his property so engaged would be deemed hostile. Great Britain has attempted to maintain a further principle, that neutrals shall not be allowed to carry on any trade with colonies in time of war, which is not allowed them in time of peace, contending that if the ports are generally opened during war so as to ward off its pressure, it ought to be deemed a privileged trade, and subject the property to confiscation. America has resisted this extension of the doctrine, asserting it to be new, and not founded in the law of nations. So the coasting trade of a country is so generally confined to its own subjects that it is deemed a privileged trade; and the property of neutrals engaged in it is treated as hostile. And the produce of an estate situated in a hostile colony has been held to be impressed with the character of the soil, although the owner of the estate is resident in a neutral country; and, as to such produce, he is deemed an enemy. A peculiar rule has been applied to certain European factories established in the Eastern and Asiatic nations. These factories are deemed to possess the national character of the countries to which they belong, and not that of the countries where they are situated. The same rule has been applied to European establishments in Smyrna and other Turkish provinces. But the property of enemies is not always liable to capture, for the government itself may limit the operations of war; and certain property is, by the law of nations, exempted from capture. Thus vessels which are cartels, or are sailing under the license flag and pass of the government, cannot be seized as enemy's property; for they are protected by the express or implied authority of the government itself. And it is not uncommon for the government, by special instructions, to limit hostilities. Thus fishing vessels are often exempted from capture, though belonging to the enemy.

IV. Under what circumstances neutral property becomes subject to capture. 1. Belligerents having a right to capture the property of their enemies on the ocean, wherever it can be found, this right would become utterly ineffectual unless they were permitted to visit and search vessels on the ocean, in order to ascertain whether they and their cargoes were neutral or hostile. The right of search is therefore generally admitted as an incident to the right of capture. It has been, indeed, occasionally resisted; but it seems now firmly established as a part of the law of nations, though it is often used as an instrument of vexation to neutrals. Sweden, in the war between France and England, from 1793 to 1802, attempted to establish an exception, where her own ships, being neutral, were navigating under the convoy of her own public ships. But England made captures of them for resistance of the right of search; and, though much irritation existed at the time, the doctrine maintained by England seems now generally admitted. Neutrals taking the advantage of belligerent convoy will, it is said, not be liable to confiscation, unless they receive convoy orders and coöperate in resistance of the right of search. But this doctrine seems questionable; and the judicial opinions in England and America on this subject are irreconcilable. It may, then, be laid down as a general rule, that neutrals are bound to submit to the right of search; and, if they resist it, the property is liable to confiscation. 2. And the right of search draws after it a right to capture and send in the visited ship for adjudication, whenever (though the ship and cargo are under neutral papers) there are circumstances of just suspicion as to their real character. The neutral, under such circumstances, is bound to submit, and wait the regular result of the adjudication of the proper prize tribunals. If, after the capture, the neutral crew rise, and regain the neutral ship from the possession of the captors, that alone is a hostile act; and however innocent in other respects the ship and cargo may be, they are justly subjected thereby to confiscation. 3. Another cause of the just confiscation of neutral property is that it is contraband of war. (See *Contraband.*) Goods contraband of war are generally those which are peculiarly and exclusively adapted to war, such as military and naval equipments and stores, such as guns, muskets, ammunition, and other articles usually appropriated to war. So ships built for war, and going to the enemy's country for sale, are contraband. Neutrals, being bound to abstain from taking any part in the war, are justly deemed to identify themselves with the enemy by any interposition in it, or by any act against their duty; and if they commit any such acts, they are treated as enemies. Many articles of commerce are of promiscuous use, both in war and peace; and, in general, such articles are treated with indulgence, and furnish no ground for capture. And, especially, articles which constitute the produce and export of a neutral nation are, at all times, though applicable to war, treated with indulgence. But if such articles are directly destined for the military or naval use of the enemy, they will then be subject to confiscation, although they are of promiscuous use. Thus ship timber and naval stores, destined to the ports of military equipment of an enemy, are deemed contraband. So provisions in general are not deemed contraband (although there has been much conflicting discussion on the subject), being of promiscuous use; but provisions destined to the military or naval use of the enemy, or sent to his ports of naval and military equipment, are deemed contraband. In modern times, by the conventional law between nations, provisions have been often excepted from the list of contraband, and are subjected to the right of preëmption. 4. Another just cause of the confiscation of neutral property is the breach of blockade. Every belligerent has a right to invest the ports of his enemy, to cut off his supplies, and to endeavor thus to compel him to a surrender. And a neutral can have no right to interpose, and relieve the besieged from the pressure of superior force. It is therefore a general rule that a violation of a blockade, by any neutral, subjects his property engaged in it to capture and condemnation. But very important questions grow out of this subject, which have been the occasion of many heated discussions between neutral nations and belligerents. What constitutes a blockade in the sense of the law of nations, has been a disputed question. The principles now established on this point seem to be, that a mere *paper blockade* (as it is sometimes called)—that is, a blockade by proclamation, without any investing force—is not a legal blockade: there must be an actual naval or military force, competent for its object, on the coast and in the vicinity. The port must be actually, and not nominally, invested. If the blockading squadron be withdrawn, or be dispersed by a storm, or, voluntarily relax the siege, the blockade is, for the time, intermitted; and an entry by a neutral, at such a time, ought not to involve any penalty. France and England, during the late continental war, attempted—the former by the Berlin and Milan de crees, the latter by orders in council—to declare whole countries in a state of blockade, and to interdict all traffic with them by neutral nations. But neutral nations resisted these pretensions, with a most decided expression of public opinion, as gross usurpations; and the persistence of Great Britain in enforcing these orders of council, was one of the main causes of the late war between her and the U. States of America.

V. Another inquiry is, What constitutes a breach of blockade on the part of a neutral? A blockade may commence, and be made known by a proclamation or notification of the belligerent government to neutral nations; or it may commence *de facto*, without any such formal notice. In order to affect a neutral with the consequences of a breach of blockade, it should be duly notified to him. Where a blockade is merely *de facto*, the neutral is not in default by approaching the port, if he has no knowledge of the blockade, or if, knowing it, he comes *bona fide* towards the port for the purpose, not of entering in breach of the blockade, but merely of ascertaining, in the neighborhood, if it still exists. But if he is warned off by the blockading squadron, and afterwards attempts to enter the port, that is a breach of blockade. But a mere persistence in this intention, without any act done after such warning off, is not of itself a breach of blockade. There must be some overt act, such as sailing again towards the port, or hovering near it, with an intent to take advantage of some opportunity to enter, to constitute the offence. But where a blockade is known to the neutral, the sailing from the neutral port, with an intent to break it, is of itself a breach of the blockade. In such a case, nothing will save the neutral from the penalty of confiscation, but the fact, that the blockade, though unknown to him, was, at the time of his sailing, withdrawn; for both intent and breach must concur. A blockade by proclamation or notification may be presumed to be intended to endure; and, therefore, notice of such a proclamation is more binding upon the neutral than a mere blockade *de facto*, whose continuance may well be deemed uncertain, temporary, and liable to sudden changes of intention. In respect to cases of contraband and breach of blockade, in order to justify the capture and condemnation of the neutral vessel or cargo, or either engaged therein, it is indispensable that they should be caught *in delicto*. The penalty, therefore, attaches (generally speaking), only while the vessel is engaged in the same voyage. If that is terminated, the offence is deposited with it, and ended. The rule, however, has been held in a somewhat larger extent by Great Britain, and probably will be adopted by other nations. In cases of contraband, if the vessel has sailed under false papers and disguises, the penalty is inflicted on the return voyage. In cases of breach of blockade, the penalty, if not inflicted before, is applied in the next succeeding voyage, but not beyond that. There are other acts which are deemed violations of the duty of neutrals, and subject their property to condemnation. All these acts may be resolved into one general proposition, that if the act be in aid of the objects or interests of the enemy, or if they amount to an actual interposition in the war, they are deemed hostile. Thus, if the neutral is guilty of any fraudulent conduct to defeat belligerent rights; or if he, directly or indirectly, assists in carrying on the war, prejudicing the rights of the other party, he is treated, so far, as a party. Hence, if he is guilty of a spoliation of the ship's papers, or a fraudulent suppression of enemy interests; if he carries enemy goods under false papers; if he carries despatches, or military passengers for the enemy; if he engages in the transport service of the enemy; if he sails under the special license and pass of the enemy;—these, and other acts of a like nature, will subject his property thus employed to confiscation, and he will be thus far held an enemy. And if the neutral mixes up and covers his own property designedly with that of the enemy, the whole will be condemnable. A court of prize will not assist him to unravel the transaction, but will deem the whole forfeited by his own misconduct.

VI. The question has often been discussed by publicists, how far a neutral has a right to carry enemy's goods, and in such case whether the neutrality of the ship gives a neutral character to the cargo; or, in other words, whether free ships make free goods, and enemy ships make enemy goods. There have been many struggles, in modern times, on the part of neutrals, to incorporate into the law of nations the principle, that free ships shall make free goods. But they have wholly failed of their purpose; and the right, whenever it exists at all, is the result of treaty stipulations, and binds those nations only which are parties to them.

The general principle now acknowledged in the practice of nations is, that enemy property found on board of neutral ships is liable to capture and condemnation. The neutral flag does not protect it. And, on the other hand, that neutral property found on board of enemy ships is not liable to condemnation; but the neutral is entitled to restitution. In all these cases, the belligerent is understood, upon the capture, to succeed to the rights of his enemy, and no more, unless there has been some misconduct on the part of the neutral, to make him forfeit the protection of the law of nations. If enemy property is found on board a neutral ship, and the conduct of the neutral is *bona fide*, he is entitled to receive the stipulated freight of carriage from the captors. If neutral property is found on board an enemy ship, the neutral must, if the captors are willing to complete the voyage, pay to the captors the stipulated freight upon due delivery and restitution.

VII. As to the nature and proofs of proprietary interest in ships and cargoes. In the ordinary course of things, the proprietary rights must be judged of by the documents and evidence found on board, and the general principles of national jurisprudence applicable to such subjects. No nation has a right to decide such questions by its own mere municipal regulations, as to the rights of property, but must decide them upon the general doctrines of the law of nations. Every ship navigating the ocean is expected to have on board some papers, which, under proper verifications, shall establish her national character. The usual papers, therefore, which the laws of her own country require as evidence of that character, ought to be on board; and if they are not, that very circumstance creates a suspicion of a false and assumed character. The like rule applies to cargoes; for these are expected to be accompanied by suitable documents to prove the ownership and national character, and to be verified by some public or customary authentications of public officers. The general criterion, therefore, adopted by the law of nations to distinguish the property of different nations found on the sea, is to require the production of such documents as the laws of the nation itself require, as evidence of proprietary interest. But these papers are not deemed conclusive, but only *prima facie*, evidence, until they are impeached. There are, however, some peculiar rules of evidence adopted in prize courts, which require to be mentioned. In the first place, it is a rule of prize courts, in all cases of capture, that the burden of proof is on the claimant to prove a neutral proprietary interest. If he fails so to do, the property is deemed hostile. One reason for this rule is, the difficulty of the captors establishing the contrary, as they have no privity with the shippers; and another is, the extreme facility and frequency of covering belligerent property under neutral disguises in time of war. Another rule is, that the circumstance of property being found on board of an enemy's ship affords a presumption, that it is enemy's property; and that presumption will prevail, until it is clearly displaced by satisfactory evidence to the contrary. Another rule is, that where a party claims under a title by capture, he must show a sentence of condemnation; for though, as between belligerents, the property is, or may be changed by mere capture, neutrals or others purchasing from them, must show a good title under the sale, which can only be by such a sentence. Goods are usually accompanied by bills of lading, invoices, and letters of consignment. But a mere consignment to a party is no absolute proof of property; for he may be the mere agent of the shipper. It is, therefore, a rule, that, in such a case, the goods must appear by the documentary evidence to be really shipped on account and risk of the consignee. The consignment must amount to an absolute transfer of the property to the consignee; for if it is contingent, or dependent upon future occurrences, it is deemed to remain still in the shipper. Thus, if the shipment is made on the joint account of the shipper and consignee, or on the sole account of the consignee, at his option, the property, during the voyage, remains in the shipper, and may be captured as his, for, until the option is made, there is no absolute transfer: so, if a sale made during war be conditional or contingent, or dependent upon future acts or circumstances, the proprietary interest is deemed to belong to the vendor: so, if the goods are sent by the vendor to the vendee without orders, though on account of the latter, the interest remains in the vendor. It is also a rule of the prize court, that property cannot, in time of war, be transferred *in transitu*; so that, for all the purposes of capture, it is treated as belonging to the same party, during the whole voyage, to whom it belonged at its commencement. Another rule is, that no lien upon enemy's property by way of pledge, or hypothecation, or for advances made by the consignee, or in virtue of a general balance of accounts due to the consignee, as factor, is regarded in the prize court as sufficient to defeat the rights of captors; nor, indeed, any liens except such known liens as accompany the very goods by the universal commercial law, such as a lien for freight. The reason for this rule is, that the liens created by private persons must be essentially dependent upon and connected with the municipal laws of the countries where the parties live, and the courts of prize would be involved in endless perplexity in the examination of them, and they would open a wide door for the introduction of false and fraudulent claims, which such courts could have no adequate means to detect.

VIII. Another inquiry is, how far the property of belligerent subjects engaged in trade with their enemies, is liable to capture and condemnation. The declaration of war puts (as has been seen) all the subjects of the different nations at war with each other, as well as the nations themselves in their sovereign capacity: hence all traffic between such subjects, being enemies, is prohibited by the law of nations, and not only all traffic and commerce, strictly so called, but all commercial dealings. Therefore, entering into contracts with an enemy, making remittances to him, or paying debts to him, during the war, is deemed an illegal intercourse, which may interfere with the national policy, and, in some cases, paralyze the operations of the war. A belligerent has no right to go into the enemy's country at all without the license of his own government, even for the purpose of bringing away goods which were purchased before the war commenced. The same principle applies to the subjects of an ally in the war; for the duties of each are the same. Hence the property of a subject, or of an ally, found engaged in commerce with the enemy, is liable to capture, and treated as enemy's property; for no person can be permitted to set up in a court of prize a claim to property founded on a violation of the law of nations. And it matters not whether the trade be carried on directly or indirectly with the enemy, directly with the enemy's ports, or indirectly through a neutral port; or whether there be an actual trade, or only an attempt to trade, for the voyage is itself illegal. And if a belligerent be engaged in any trade in violation of the municipal laws of his own country, and the property so engaged is captured, he cannot maintain any claim for it in the courts of prize of his own country; for he cannot be permitted to set up his own offence against the laws to protect his property from condemnation; and his claim being rejected, the property is of course confiscated, as enemy property, for want of a proper claim. If a vessel is captured during the same voyage in which the offence of illegal traffic is committed, although after it has been committed, she is still deemed *in delicto*, and subject to confiscation. And perhaps the same rule of confiscation would be applied to the return voyage, as is applied in cases of breach of blockade and contraband of war.

IX. It is often an important question, how far the acts of the master of the ship bind the owner of the ship and the owner of the cargo. In respect to the owner of the ship, the general rule is, that the acts of the master bind him as much as if the acts were done personally by himself. This rule is established upon the doctrine that the principal is answerable for the acts of his agent, not only civilly, but penally, to the extent of the property intrusted to him. It would be difficult, in any other way, for a court of prize to reach the proprietor himself, however guilty he might be. And, if the rule savors of hardship, it should be remembered, that it is indispensable for the exercise of the just rights of war, and to enforce the just duties of neutrality. If the master has acted in contravention of the instructions of the ship-owner, he will be responsible to the latter. If, therefore, the master deviates into a blockaded port, the owner is bound by his act, and is not permitted to aver his ignorance, or that the master acted against orders. The same principle applies to the carriage of contraband goods. Grotius, and Bynkershoeck, and Pothier, have contended for a more favorable rule, where the owner is ignorant that contraband goods are taken on board. The rule, however, has been established by modern practice against their opinions. But the acts of the master of the ship do not bind the owner of the cargo, unless he is also owner of the ship, or he has knowledge of the unlawful intention, or the master is his agent. In cases of blockade, the deviation into the blockaded port is deemed to be in the service, and for the benefit of the owner of the cargo, and therefore he will be bound by the act, if he had knowledge of the blockade at the time of the sailing of the ship: so if, at the time of the sailing of the ship, the master puts himself under convoy of the enemy, it will be presumed, that it is done with the consent of the owner of the cargo. But where, from the nature of the act occurring during the voyage, upon an emergency which could not have been foreseen by the shipper, it is clear that it is done without the consent of the latter, the act will not bind him, although the master is his agent. But it will be different when the act might have been in the contemplation of the parties at the beginning of the voyage; for, in such a case, ignorance will not be allowed to excuse the shipper from the legal results of the act of his agent. There are many cases in which the acts of the master will bind the owners, both of the ship and the cargo: such are the resistance of the right of search, the rescue or recapture of the ship by the master and crew after capture, and the fraudulent suppression and spoliation of papers. It has been an agitated question, whether the resistance of a right of search by a belligerent master binds neutral property on board, although it is admitted that the resistance of a neutral master will bind all goods on board, to whomsoever belonging. The English prize courts have adhered to the affirmative, and the American prize courts to the negative. And where a person is the general agent of the whole cargo, and he covers enemy property in the ship with his principal's property, the whole will be liable to condemnation, although his principal had no knowledge of the illegal act; so if he uses simulated papers; for the carriage of such papers is emphatically said to be an efficient cause of condemnation.

X. The rights and duties of captors. 1. From what has been already stated, it is manifest that, in many cases, it will be impossible to ascertain, from the examination of the papers on board of a ship, which is visited at sea, whether she is a neutral or belligerent, and whether she is condemnable or not. The captors therefore make the seizure at their peril; and if it turns out to be unjustifiable, they are responsible for all damages and costs arising from their act. If, on the other hand, the capture is justifiable, the captors are exempted from all liability for damages and costs, whatever may be the event, and even though the property may be restored by the prize court as neutral. They may even be entitled, in case of restitution, to be paid their own costs and expenses, where their conduct has been entirely correct. The captors, upon a justifiable capture, are considered as having a *bona fide* possession; and they are not responsible for any subsequent losses or injuries to the property from mere accident or casualty, as from stress of weather, recapture by the enemy, shipwreck, &c.; but they are responsible for all losses to neutral property which are properly attributable to their own negligence. Probable cause of capture is a perfect justification to captors, even though ultimately a restitution may be decreed. It hence becomes a very important point to ascertain what facts and circumstances constitute such probable cause. These may be almost infinitely varied, and it would be impossible to enumerate all of them; but some of the more common cases may be stated. If the ship pretend to be neutral, and has not the proper and usual documents on board to verify her own character and that of the cargo; if the cargo be without a proper custom-house clearance; if the destination be falsely stated; if the papers on board be false or colorable, or be suppressed, mutilated or spoliated; if the neutrality of the cargo does not clearly appear; if the voyage be to or from a blockaded port; if the traffic be not legal to the parties engaged in it; if the cargo be of an ambiguous character, as to contraband, or its destination be to a port of an ambiguous character, as a port of military and naval equipment; if the conduct of the officers and crew of the vessel give rise to just suspicions of their good faith,—in all such cases (and many others of a like nature might be mentioned), there is sufficient probable cause of capture to justify the captors. If any part of the property is condemnable as prize, though the bulk of the cargo may be restored, that constitutes not merely probable but justifiable cause of capture. But even probable cause of capture will not excuse captors from liability for any loss or damage accruing afterwards from their own negligence or misconduct; for the title of a *bona fide* possessor may be forfeited by such negligence or misconduct. If, therefore, the prize be lost by the negligence or misconduct of the prize officers and crew, from neglect to take a pilot, or from want of a proper prize crew, or from unskilful navigation, or from any impropriety of a similar nature, the captors are responsible to the full amount of the damage. But mere irregularity alone will not make the captors liable for damages, unless there is an irreparable loss properly attributable thereto. 2. Next as to the duties of captors. As soon as the capture of a neutral is complete, it is the duty of the captors to put a proper prize crew on board, and to send the prize into some convenient port for adjudication. The neutral crew, or a part of them, at least, are to be kept on board, and are not to be treated with severity, or handcuffed, or put in irons, unless from extreme necessity. If the neutral crew voluntarily undertake (which they are not bound to do) to assist in the navigation, that may dispense with the necessity of putting on board a full prize crew. Captors are bound to state to the master of the neutral vessel the cause of the capture, so as to give him an opportunity to make suitable explanations, and to show the insufficiency of the reasons to send her in for adjudication. Some stratagems of war are permitted in order to secure captures, as sailing and chasing under false colors; but the law of nations does not permit firing or capturing under false colors. It is the duty, also, of the captors, after capture, to prevent all spoliation and damage by the prize crew, and to abstain from breaking bulk, or removing any of the property, unless in cases of necessity. If any acts of this nature occur, the court of prize will require at their hands a full justification. Upon arrival in the proper port, it is the duty of captors, without delay, to cause proceedings to be instituted in the proper prize court, so that the legality of the capture may be immediately ascertained. In case of any undue delay, they will be made liable for demurrage, if restitution is decreed. And the neutral may himself, by a proper application to the prize court, compel the captors to proceed to adjudication, if they unreasonably delay. In cases of illegal capture, the inquiry often arises, Who are responsible for the damages and costs? In respect to public ships, the general rule is that the actual wrongdoer, and he alone, is responsible. By the actual wrongdoer is meant the commander who has directed the capture; for the subordinate officers and crew, who have only acted in obedience to his orders, are not responsible. However, when any unauthorized act has been done by a prize master, or by a part of his crew, such actual wrongdoers, thus acting without authority, may, perhaps, be made directly responsible. The rule in relation to the actual wrongdoer is so inflexible that, if the capture has been made by a captain under the instructions of the commodore or admiral commanding the squadron, or the station, who is not present at the time of the capture, the sole remedy lies against the actual captor alone, although he may have his own remedy against his superior officer, under whose instructions he has acted. In respect to private armed vessels, a different rule prevails. There the commander is not only responsible, but the owners of the ship also, for all the illegal acts of the commander and crew. And, for the purpose of making this responsibility effectual, on the grant of commissions to privateers, bonds are usually taken, with sureties, as a guaranty against their misconduct.

XI. Recaptures. A recapture may be of the property of a fellow-subject, or of an ally in the war, or of a neutral. It may be from the hands of a pirate or of an enemy. In respect to captures by pirates, no property can be acquired by them, and consequently the capture creates no change of ownership. It is, therefore, to be restored to the original owner, upon the payment of a suitable compensation, commonly called *salvage*, to the recaptors. But, in respect to captures by enemies, the change of property is complete from the time when the capture is deemed firm and secure, whether this be as soon as the surrender (*deditio*) and possession are perfected, or by pernoctation, as holding the possession after capture for a night, or by possession during any other stipulated period, or by carrying the property within the ports and territory (*infra præsidia*) of the capturing power, or by a sentence of condemnation. Various doctrines have, at different times, prevailed among nations, applicable to each of these predicaments of the captured property, the general rule being admitted, that the property is changed as soon as the capture is firm and secure, and the question still remaining open as to the time at which it is to be deemed firm and secure. The right of postliminy (*jus postliminii*) is deemed to attach to all property captured, of which there is not such a firm and secure possession. And, therefore, different nations will withhold, or will grant restitution of property captured, according to the principles adopted in their own codes of practice on this subject. The ordinances of many nations have made special provisions on the subject of recaptures. By the law of France (ordinance of 1681), if a French vessel is recaptured from the enemy after twenty-four hours' possession, she is a good prize to the recaptors; and if recaptured before twenty-four hours' possession, she is restored to the owner upon the payment of one third of the value as salvage. But this rule is construed to apply solely to recaptures by private armed ships; for if made by public ships, restitution is decreed without payment of any salvage, whether the recapture be before or after the twenty-four hours' possession. France applies a similar rule to the recaptures of the vessels and property of her allies from the enemy. The law of Spain, in regard to recaptures from the enemy, is similar to that of France. By the law of Denmark, in the code of Christian V, if the recapture be before twenty-four hours' possession, the property is equally divided between the original owner and the recaptors; if afterwards, the recaptors take the whole. By the law of Sweden of 1667, the recaptors are entitled to a salvage of two thirds of the value, and the remaining third is to be restored to the original owner, whatever length of time the vessel may have been in the hands of the enemy. Some alterations have been admitted into the regulations of these nations, in more modern times, either by positive ordinances, or by the practice of their courts, indicating a considerable fluctuation of opinion; but it is not necessary, and scarcely would be useful, to trace out these alterations in detail. Great Britain and the U. States of America have adopted the rule, that the property of the owner is not devested, except by a sentence of condemnation. In respect to recaptures from the enemy of ships belonging to their own subjects or citizens, they are to be restored, upon payment of salvage, if there has been no such sentence. And, by recent statutes (43 Geo. 3, ch. 160, and 45 Geo. 3, ch. 72), British vessels and goods are, upon recapture from the enemy, restored, upon the payment of one eighth of the value, if recaptured by a public ship, and one sixth if recaptured by a privateer or other vessel, without reference to the consideration, whether the property has been condemned by a court of prize or not. There is an exception of vessels which have been set forth by the enemy as ships of war. So that, in Great Britain, the right of postliminy continues forever, or, at least, until the return of peace. In the U. States of America, the act of congress of 1800 has adopted a rule, similar to that of Great Britain, in all cases where there has not been a sentence of condemnation. With us, therefore, the right of postliminy is extinguished by such a sentence. The salvage is one eighth to public ships, and one sixth to private ships, in cases of restitution. But, if the vessel has been set forth and armed for war by the enemy before the recapture, then the salvage is one moiety of the value. In respect to the recapture of vessels, and other property belonging to allies, the rule adopted by Great Britain is the rule of reciprocity. If the ally would restore British vessels and property in a like predicament, then restitution is decreed: if the ally would not restore, then the recaptors are entitled to the whole property. And, in the absence of all evidence of any rule adopted by an ally, the British rule is applied in favor of the ally, until it appears that such ally acts towards British property on a less liberal principle. When the rule of the ally is ascertained, Great Britain then adopts the rule of the ally. America has adopted an equally liberal course. In all cases of recaptures from the enemy of property belonging to nations or their subjects in amity with the U. States, where there has been no sentence of condemnation, restitution is decreed, or not, according to the rule which is adopted by such nation in like circumstances towards the U. States. But no restitution is decreed after the property has been condemned by the sentence of a competent tribunal. In respect to recaptures of neutral property, the general rule is to restore the property without the demand of any salvage, if the taking by the enemy was without any reasonable cause, and was merely wrongful. But, if the capture was rightful, and the neutral property was liable to condemnation, or, from the known course of practice of the enemy, was in danger thereof, then, as a beneficial service is rendered to the neutral, salvage is demandable. The ground of this distinction is obvious. If the original capture be wrongful, the neutral is entitled to a decree of restitution, with damages and costs at the hands of the captors; and it is no benefit to him to make a recapture. But if the conduct of the neutral vessel, or the nature of the cargo, would subject, or might probably subject, them to condemnation, then the recapture is a benefit to the neutral, and entitles the recaptors to remuneration. So, if the enemy is in the habit of disregarding the law of nations, and violating all the just rights of neutrals, and refusing them suitable redress, or harassing them with unjust litigation, as, in such cases, there is danger of loss to the neutral, a like remuneration should be paid to the recaptors. Principles of a similar nature are applicable to a *rescue* of a prize by the original crew, or others in aid of them, or by mere strangers. The rescue may be by citizens or subjects of the belligerents, of property belonging to fellow-subjects or fellow-citizens, or by foreigners, of property belonging to foreigners, or by citizens or subjects, of property belonging to foreigners, or by foreigners, of property belonging to citizens or subjects of the belligerents. In all these cases, salvage is due where it would be due in cases of recapture. In cases of derelict by the enemy after capture, the salvors are also entitled to salvage upon restitution; and in like manner upon donations made by the enemy before condemnation, where the donees have brought the property into port, and it is restored (as it ought to be) to the original owner. Where a hostile ship is captured, and is afterwards recaptured by the enemy, and then is recaptured again from the enemy, the original captors are not entitled to restitution upon payment of salvage; for all their rights were devested by the first recapture. The same rule applies where the original captors have voluntarily abandoned their prize, but not where the abandonment has been involuntary, and occasioned by the terror of a superior force of the enemy. In all cases where the amount of salvage is not expressly provided for by law in cases of recapture, the power of courts of prize to award it is discretionary.

XII. Connected with the subject of recapture, that of ransom may properly find a place. It has been already stated that, during war, all intercourse, and right of making contracts, are suspended between belligerents, as interdicted by the law of nations. But an exception has been uniformly recognised in the practice of nations as to contracts of ransom. This contract arises when the enemy, having made capture of a prize, consents to restore it, upon receiving a suitable compensation; and the contract so entered into between the parties is, upon principles of public faith and policy, held valid. It is usual, in such cases, to retain the master, or some of the officers of the prize, as hostages for the strict fulfilment of the contract. The death or escape of the hostages, they being merely security, does not discharge the contract. And although, upon strict principles of law, it has been thought, by the British courts, that actions upon ransom bills cannot be brought against the owners (who, as well as the hostages and master, are bound by the contract) during the war, yet it seems difficult upon principle to perceive why a court of prize might not properly enforce it as a contract of prize excepted from the general rule of hostilities. The effect of a ransom is, that it amounts to a virtual safe-conduct to the vessel and cargo during the remainder of the voyage, so as to prevent the property from a second capture by another belligerent cruiser of the same nation. If it were otherwise, the ransom contract would scarcely be entered into; and, since the validity of the contract is conceded, there is an implied consent on the part of the sovereign of the captors, that it shall be a protection from subsequent capture during the voyage. If the prize, however, deviates from the voyage, she forfeits this protection, and will be liable again to capture. And if she is lost during the voyage, the ransom contract is still obligatory upon the parties; for it is not on the part of the captors a contract for the risk, unless they expressly so engage, but a simple surrender of their own rights acquired by capture. If the prize be a neutral, still, if the capture is not utterly wrongful, but founded upon justifiable cause of capture, such as breach of blockade, carrying contraband, or other violation of neutral duties, or even if it is upon probable cause of capture, and sending in for adjudication, a ransom bill given by the neutral for a release is good, and will be enforced in the tribunals of the neutral country. But suppose, after the ransom bill is taken, the capturing ship, together with the bill, is captured, what becomes of the ransom bill, and to whom does it belong? The answer is, that the ransom bill is a part of the capture, and the debtors upon it are thus discharged from all claims by the enemy upon it. But it does not necessarily follow, that the recaptors, succeeding to the rights of the ransom holders, might not be entitled to salvage for the benefit rendered to the debtors upon the ransom bill. Pothier says (*De Propriété*, n. 139, n. 140) that, in cases of deviation after the ransom, if a second capture takes place, the ransom holders are entitled to the amount out of the proceeds of the prize, and the second captors can only take the residue. And, under such circumstances, he deems the debtors on the ransom bill discharged from their obligation. His reasoning does not seem very satisfactory. In England, ransom bills are prohibited, and declared by statute to be void, unless in cases of extreme necessity, to be allowed by the court of admiralty. In America, no statute regulations exist; and, therefore, the doctrine stands on the general law of nations.

XIII. Joint captures. Captures may be made by a single vessel, or by an associated force acting together by preconcert, or accidentally coöperating, or by a detached ship belonging to a squadron, by privateers, or by public ships of war, by naval forces alone, or by the conjoint operation of land and naval forces. 1. In relation to public ships, the general rule is, that all public ships in sight at the time of the capture are deemed to be assisting, and are, therefore, entitled to share in the capture. It is otherwise in relation to privateers, for their being in sight is not sufficient, unless they are purposely and previously associated together; but there must be actual intimidation, an actual or constructive assistance. The reason of this distinction is, that public ships are under a constant obligation to attack the enemy; and, therefore, from the mere circumstance of their being in sight, a presumption arises that they have an intention to capture. But, in the case of privateers, no such obligation exists; and the law does not, therefore, give them the benefit of a like presumption. Besides, in cases of public ships, the rule ensures harmony in the service; and in favor of public ships, the rule prevails even when the actual capture is made by a privateer. There are exceptions, however, to the rule, even in relation to public ships, where the circumstances of the case repel the presumption of constructive assistance. Thus, if the public ship be pursuing a course inconsistent with any notion of capture, or if she have given up the chase, or otherwise abandoned all intention of coöperation or pursuit, the claim of joint capture will be repelled. But, even in cases of public ships, the rule of being in sight is strictly construed. The ship must, at the time of capture, be actually in sight; it is not sufficient that she has been so the day before: she must also be in sight at the commencement of the engagement, or chase, or during its continuance. A convoying ship, notwithstanding her special employment, may be entitled to share as joint captor, if, by chase or intimidation, she aids in a capture, without interfering with convoy duty. In captures made by boats, it is a general rule that the ships to which they belong are entitled to share. In respect to public ships associated in the same service, or engaged in a joint enterprise, the general rule is, that they are entitled to share in each other's prizes made while in such service or enterprise. Thus, where a fleet is engaged in a blockade, the service is considered as joint, and all the fleet are entitled to share in captures made by any one of the ships. But it will be otherwise as to vessels previously detached upon a separate service, or to captures made in another service, for which they were not associated. In regard to conjunct operations by land and naval forces, how far captures made by the latter are to be shared by the former, depends upon circumstances. A mere general coöperation for the same general objects is not sufficient. But an actual coöperation is clearly sufficient. So an ally coöperating by land or sea in a capture is entitled to share in it. In respect to joint captures by public ships, the rule, as to the proportion in which they are to share, is generally settled by statute. In the U. States of America, it is provided by an act of congress, that capturing ships shall share according to the number of men and guns on board each ship in sight. In respect to joint captures by privateers, no statute regulations exist; and the general rule of the prize law, in such cases, is, that they are to share in proportion to their relative strength. In Great Britain and the U. States of America, this relative strength is measured by the number of men on board assisting in the capture. The rule is the same where an ally coöperates in the capture, and in cases of joint capture by a public ship and a private ship, whether commissioned or not.

XIV. The effects of a suspension of hostilities, and a treaty of peace. An armistice, truce, or other suspension of hostilities, is binding between the parties from its date; and all captures made subsequently thereto must be restored by the sovereign. But the actual captors, if they have no notice, are not to be deemed guilty of a wrongful act to the extent of being liable for vindictive costs and damages, at least, if they have not been guilty of gross misconduct or wilful negligence. There may, indeed, be special cases in which ignorance of a treaty of peace, or of a suspension of hostilities, either generally or in particular places, might not excuse a party from responsibility for a capture, or other wrongs done to the injured party, and in which the sovereign would be bound to indemnify him. But such cases are rare, and are governed by their own circumstances. To avoid inconveniences of this sort, it is customary to fix certain distant periods at which hostilities shall cease in different places, so that all parties may have suitable opportunities of notice. In cases where such stipulated periods are fixed, subsequent captures are deemed utterly invalid.

But as to captures antecedently made, especially after notice of the existence of the peace, some diversity of opinion exists among writers on public law. The better opinion, however, seems to be, that if the treaty does not otherwise provide, the rule of *uti possidetis* prevails. A treaty of peace has the effect of quieting all titles of possession acquired during the war, unless a different stipulation is made. It therefore operates as conclusively between the belligerents as the most formal sentence of condemnation. And whatever defect may exist in the title, the infirmity is cured, or at least it can no longer be insisted on. And neutrals, who have acquired property from belligerents, under defective titles, have a right to avail themselves of this confirmatory operation, by a treaty of peace. Whatever rights existed antecedent to hostilities between the subjects of the belligerents, if no confiscation or action upon them has taken place during the war, are revived, and may be pursued and claimed, upon the return of peace.

XV. Such is a brief outline of some of the more important principles of prize law, applicable to maritime captures. A full examination of all of them, in their details, could be made only in a large and voluminous treatise. This sketch will be closed by a summary of some of the principles which regulate the general practice of the English and American courts of prize. 1. As soon as the captured ship arrives in port, the prize-master is bound to give notice thereof to the proper court of prize, and to deliver, upon oath, into the registry of the court, all the papers found on board of the ship. It is the duty of the captors to send in, with the ship, the master or some of the principal officers and crew of the ship, in order that their testimony may be taken, upon standing interrogatories, which are prepared under the direction of the prize court. The prize-master accordingly gives notice to the commissioners appointed to take the examinations of the master and crew of the captured ship, so brought in, upon these interrogatories; and these examinations are made immediately after the arrival in port; and in order to prevent frauds and concealments, the witnesses, before examination, are not allowed to have any communication with, or to be instructed by, counsel. Each witness is separately examined and his answers written down, and the whole are then subscribed by him, and verified by the commissioners, and then certified, under seal, to the prize court. These examinations being completed, a libel is filed in the prize court, alleging the facts in the most general form, and asserting the property to belong to enemies; and a monition is thereupon issued and duly published, requiring all persons who have any interest or claim to appear, at a given day, in court, and show cause why the ship and goods should not be condemned as prize. This is the American practice, which differs, in the order of the proceedings, from the English, the latter issuing the monition before the filing of the libel. 2. Upon the return of the monition, the parties who have any interest, and mean to assert any claim, appear and put in their claim, under oath; and as soon as such claim is put in, the cause is ripe for a hearing. If the ship or any part of the cargo is neutral, the master usually puts in a claim in behalf of the owners, or it is put in by the consul of his nation, or by the accredited correspondents or agents of the claimant. If the captors have been guilty of any delay in instituting proceedings, the claimant may procure a monition from the court, requiring them to proceed to adjudication. If no claim is put in on the return day of the process, the default is entered on the records; but it is not now usual to proceed to a final decree of condemnation until a year and a day after the return of the monition, except in cases where, from the evidence, there is a strong presumption that the property belongs to the enemy. But after a year and a day, condemnation goes of course, unless a claim is interposed. 3. No claim is permitted to be put in, unless by the master, or correspondent, or agent, of the owner, or by the consul of the nation. A mere stranger, having no interest, is not permitted to claim. It has been already stated, that a claimant in a prize court must be the general owner of the property. If he has but a lien, or is a mere insurer, or a mortgagee not in possession, he cannot maintain any claim, for reasons which are founded in the incompetency of such a court satisfactorily to investigate such claims. There are certain other cases, in which claims will not be allowed to be interposed, but are rejected as incompetent: thus no claim is admitted which stands in direct opposition to the ship's papers and documents on board, and preparatory examinations, at least after the war has commenced; no person is permitted to claim, where the transaction is in violation of the municipal laws of his own country; nor in a case where the trade is prohibited by the law of nations, or the law of nature; or is a gross violation of his duties as a belligerent; in all such cases, the claimant is held not to have a *persona standi in judicio;* and, his claim being rejected, the cause stands as if there were no claim at all interposed. The ship's papers, and examinations upon the standing interrogatories, are never allowed to be seen until after the claim is filed, so that the party may not have an opportunity to frame it to meet the exigency of the evidence. 4. Supposing the claim to be interposed by a competent party, and in a valid manner, the cause is then to be heard. The hearing is, in the first instance, confined altogether to the ship's papers and documents on board, and the preparatory examinations taken upon the standing interrogatories. No extrinsic evidence is admitted on either side; for it is a general rule of the prize courts, that the evidence to acquit or condemn must, in the first instance, come from the papers and parties found on board. 5. If, upon the hearing, a case for condemnation or acquittal is satisfactorily made out, the court will at once proceed to make the proper decree. But if the case be doubtful, and the evidence unsatisfactory, then it becomes a case for further proof. The captors are rarely allowed, unless under special circumstances, to make further proof; but the claimant is allowed to make further proof unless he has forfeited this privilege by his own misconduct, or that of his agents, or the posture of the case shows that he cannot safely be trusted with further proof. The claim to make further proof is a matter not of strict right, but of sound discretion in the court. It is usually allowed where the party has acted with good faith and propriety; it is always denied where he is guilty of gross misconduct or fraud. If further proof is denied in a case which requires it, the result is, that a decree of condemnation follows; for the burden of showing that the property is not good prize rests on the claimant. And where further proof is allowed, it is usually made by affidavits and testimony taken under commission; and if then it proves still unsatisfactory, it is deemed conclusive evidence that the property is hostile, or that there has been some misconduct, which justifies condemnation. Further proof is never allowed where there are false or colorable papers on board; or where any papers are thrown overboard; or where there has been a spoliation of papers; or where there has been a covering and concealment of enemy interests; or where the master and crew, upon the preparatory examinations, have been guilty of gross prevarication or falsehood; or where there is a false destination; or where there is a want of good faith in the claimant; or where the case appears to be incapable of any fair explanation. 6. During the pendency of the proceedings, which are sometimes protracted to a great length of time, owing to accidental circumstances, an unloading of the cargo often becomes necessary. This may be procured upon a suitable application to the court, for the court has a virtual custody and possession of the property, from the moment of the proceedings *in rem* being commenced. If the property be perishable, the court has also authority to decree a sale of it, upon the application of either party; and it often proceeds to direct a sale upon the consent of both parties, where the property is not perishable. And where a sale has been made, the proceeds are subject to the order of the court, as a substituted fund for the original property; and if not brought into court, they may, in the discretion of the court, be ordered to be deposited in the registry. In cases of the capture of neutrals, application is often made for a delivery of the property upon bail, or security, by way of stipulation for the value; and when so given, the bail becomes a substitute for the property, and is subject, in the same manner, to the orders of the court; but no such delivery will be made, according to the practice of the prize court, until after a hearing of the cause, unless upon the consent of both parties. If, upon the hearing, the case is one for further proof, and the neutral has not disabled himself from producing it by his own misconduct, the court is then in the habit of allowing a delivery of the property to the claimant, upon an appraisement, and giving bail. And if the claimant will not take it, it is sometimes delivered, upon an appraisement and bail, to the captors. 7. After the cause has been finally heard, a decree is entered, either of acquittal or condemnation, of the whole or of part. A decree of acquittal will be with or without damages and costs to the claimant, according to circumstances. If there was probable cause of capture (as has been already stated), no damages or costs will be given to the claimant; but costs and expenses are usually, in such cases, decreed the captors. If the capture is without probable cause, costs and damages to the claimant usually follow. If a decree of condemnation is pronounced, the claimant is made responsible for the expenses and costs of the captors by reason of the claim. 8. A decree of condemnation being pronounced, it often remains a question to whom the condemnation is to be, whether to the government or to the captors. In cases of captures by public ships, or by non-commissioned vessels, the decree of condemnation is to the government generally. In cases of captures by privateers duly commissioned, the condemnation is to the captors. In England, the lord high admiral is, in certain cases, entitled to the proceeds of captured property, which are called *droits of admiralty*. But in modern times, this office is usually held by the king, or for his benefit, and therefore the distinction is, for the most part, now nominal. In the U. States, no such distinction exists. It is no objection to proceeding to a decree, that any of the parties have died; for, the proceedings being *in rem*, they are not interrupted by such occurrences. Time, however, is usually allowed for the legal representatives of a deceased claimant to appear, if there is any necessity; and in proceedings *in personam*, a monition always issues to the legal representatives, if any, before a decree. 9. A decree of condemnation is usually pronounced by an interlocutory, in the nature of a final decree. But the case rarely ends here; for the prize court, as an incident to the possession of the principal cause, may, and usually does, in cases of controversy, upon the application of any party in interest, proceed to decree distribution of the proceeds. If the proceeds are not in court, it also acts against prize agents and others having possession of the proceeds of prize, or bound to respond for them, by way of monition, and orders them to be brought into the registry for distribution. Such is a summary sketch of some of the most important principles of prize law and prize practice. It is necessarily imperfect, for a full discussion of these subjects would be incompatible with the design of a work of this nature.

Probabilists; those philosophers who maintain that certainty is impossible, and that we must be satisfied with what is probable. This was the doctrine of the new academy, particularly of Arcesilaus and Carneades. In morals, probabilists are those who teach that, in our actions, we must follow what seems to us most probably right; because, in questions of morality, demonstrative certainty is not to be attained. Among the Jesuits, there were some who taught that a man may follow what is probably right, or what has been decided to be so by teachers of authority, although it may not be the most probably right, or may not seem probable to himself. (See *Jesuits*.)

Probability. In the doctrine of chances, the probability of any event is the ratio of the favorable cases to all the possible cases, which, in our judgment, are similarly circumstanced, with regard to their happening or failing; and it is greater or less according to the number of chances by which it may happen, compared with the whole number of chances by which it may either happen or fail. The calculation of chances in games of hazard, and the theory of insurance, whether of property or life, are founded on the laws of probability, as developed by mathematical analysis. The doctrine of probabilities forms, of itself, a science, embracing a vast number of complicated and delicate questions. The subject is treated of in Bernoulli's *Ars Conjecturandi*, Condorcet's *Essai sur la Probabilité des Decisions*, Lacroix's *Traité*, Laplace's *Essai philosophique sur les Probabilités*, and *Traité analytique*, and in other works by Price, Halley, Simpson, &c.

Probate Courts. (See *Courts*, vol. iii, p. 601.)

Process, Forms of the civil. Momentous as this subject is, it has not received its due share of attention from philosophical minds, compared with that bestowed on numerous other branches of jurisprudence; few of which deserve more serious consideration, though many may be more attractive. As to the history of the civil process, so important a test of the political condition of a society, the work of Mr. Meyer, *Esprit, Origine et Progrès des Institutions judiciaires des principaux Pays de l'Europe* (6 vols. 1820—23), has by no means exhausted the subject. The four most important forms of civil process or civil procedure now existing, are the English, French, the common German and Prussian. I. The English is so well known to most of our readers, that we need not enter into the details of it here. (See the articles *Courts*, *Jury*, *Evidence*, *Assizes*, &c.) The general principle is, that the court takes no further part in the course of the proceedings, than to see that the law is observed, and that nothing unfair is done by either party, &c.; but it has nothing to do with the investigation of the truths in the pending case. This is left to the parties, or the skill of their counsellors. This, the oldest of the above four forms of procedure, is the opposite of the Prussian, the most recent. II. The French system is founded on the procedure of the spiritual courts, with the application of the Roman law: it has been formed since the fourteenth century by the usage of the parliaments, particularly that of Paris (*style du parlement*), and by several royal ordinances, among which, that of 1539 is distinguished. (See Bernardi, *De l'Origine et des Progrès de la Législation Française*, 1816.) Louis XIV caused a regular form of procedure to be issued in 1667, of which the most recent, that of Napoleon, in 1806, is but a modification. The oral statement of the parties in open court, is the chief point in this system. The introductory proceedings, the setting forth of the complaint, the answer, rejoinder, &c., go on entirely without the interference of the court, by means of a correspondence between the attorneys. The real points of the case are not fairly brought out, in this stage of the proceedings, and it would seem, therefore, that the whole process fails of its first requisite, a firm basis: the position and claims of the parties remain changeable and indefinite until the sentence. Nay, the true cause of action is not fully stated (*prendre ses conclusions*) till the last audience, when the sentence is given. Incidental questions must be decided, before the parties can proceed, by which great delay is caused, though much pains have been taken to shorten the process in this respect. The uncertainty caused by the want of precision in the preparatory proceedings, is, in a degree, avoided by two circumstances, which are extremely beneficial; 1st, the right of a party to demand, in any stage of the process, precise statements respecting particular alleged facts from the opposite party (*interrogatoire sur faits et articles*), which are not given on oath, indeed, but under strict obligations to veracity; and, 2d, the right of the judge to order the parties to appear in court, that he may question them himself respecting the facts. The second chief part of the process, the mode of proof, is, like every order emanating from the court, introduced by an interlocutory judgment, against which the common legal remedies are admissible; and, lastly, the third part, the arguments of the advocates are presented orally in open court. In civil cases, as is well known, there is no jury in France. III. Since the reforms of the sixteenth century, and particularly the last decree of the diet of 1654, the German (excepting the Prussian) process is chiefly characterized by the cautious and complete statement of the cause of action; the obligation of the defendant to answer thereon immediately and fully, bringing together all his objections; and the skill with which the examinations of the evidence are conducted. The judge is bound to see that the written statement of the plaintiff's cause of action possesses the necessary qualities to make a safe basis for the whole of the future proceedings. But this is a duty which he can fulfil but in an imperfect manner. The great disadvantages accruing to the parties themselves, from an imperfect exposition of the cause of action, are the strong motives which induce the greatest caution in drawing up these statements. Yet the most skilful lawyer is not always able to avoid the dangers to which he is exposed; and as, in Germany, the practice of the law is, generally speaking, the preparatory step to public office, and as very few men of talent remain permanently in the profession, which stands in a very subordinate relation to the court, it is easy to perceive what injury is done to the parties by inexperienced, incompetent counsel. The great art is, to say as little as possible, to admit as little as possible; and an honest, plain exposition by the parties is, of course, very rare. The proof can be attempted but once. A failure is irremediable. Often, therefore, a party with a good cause of action fails, after a tedious process and great expense, and is obliged to begin his cause anew; and it often happens, that a well founded claim is lost forever, by an attempted proof badly conducted. (The right of parties to produce better proofs, after having presented insufficient ones, is to be found as yet in but few systems of civil procedure.) The third part of the process, also, viz. the arguments of the counsel, are in writing; and, as they are only intended for the judge, little care is generally bestowed upon their style of execution, except in some of the higher courts. IV. In order to prevent these evils, and to exclude as much as possible the arts of advocates, the Prussian process returns to the ancient provisions, found in the Roman and canon law, and retained in the French system of procedure, which require the judge himself to examine the parties respecting the facts; and it has even gone one step farther. Its foundation was laid as early as the system of procedure of the high chancellor Cocceji, in 1748; and the reform of Carmer, in 1780, fully established the rule, that the judge himself should hear the allegations of the parties against each other, bring the points of dispute into a connected form (and, if the parties wish it, himself write down the complaint and answer), then collect the proofs respecting the essential facts, and, particularly, hear the witnesses himself. Hence arises the important consequence, that each party can constantly complete and correct his own statements, and is not obliged to bring together, with anxious care, in the beginning of the action, every thing which may become necessary, nor to weigh every word in a balance. No complaint can be rejected merely for informality or mistake in regard to the legal mode of bringing the action, because such defects can be remedied by order of the judge. Hence the conduct of a cause requires, in general, incomparably less time and exertion than in the common German process, and that of France, because interlocutory judgments do not take place; and the whole course of the cause is directed by decrees. The greatest advantage, however, is considered to be the little influence of mere forms, and the paramount importance which is always given to the truth. The third part of the process has nothing peculiar, as here, also, only arguments in writing take place. The remarkable character with which the Prussian judge is thus invested, has been censured by a number of the first jurists in Germany. We have not space to show the advantages of the system; the Prussians themselves are attached to it, and consider justice as strictly administered in their country. The last part of the Prussian process and the final sentence have been considered, even in Prussia, the most objectionable part of the system, and might, perhaps, be remedied by substituting for them oral public proceedings. To a free country, always more or less subject to party excitement, such a system could hardly be adapted. A curious consequence of the Prussian process is, that the career of the lawyer begins by being attached to a court, where he works under the superintendence of the judges, hears witnesses, draws up a statement of the circumstances, and afterwards becomes a judge, or some other officer of government, or one of the counsellors, the number of whom is limited in each court.

Procession, in the Roman Catholic church; a solemn march of the clergy and people, attended with religious ceremonies, prayers, singing, &c., around the altars and churches, or in the streets, for the purpose of returning thanks for some divine blessing, or averting some calamity, &c. (See *Pilgrimage*.) Processions, as a part of the symbolical worship of nature, were in use among the ancient heathens; thus they formed solemn processions about the fields, which had been sowed, and sprinkled them with holy water to increase their fertility, and to defend them from injuries. The festivals in honor of Bacchus, Ceres, Diana, and other divinities, among the Greeks and Romans, were solemnized with processions, in which the images of the gods were borne about; and similar rites are still found among most heathens. (See *Juggernaut*.) They appear to have been introduced into the Christian church in the time of St. Ambrose (q. v.), bishop of Milan, in the fourth century. In Protestant countries, processions, as well as pilgrimages, have ceased.

Procession of the Holy Ghost. (See *Creed*, and *Ghost, Holy*.)

Procida, Giovanni di. (See *Sicilian Vespers*.)

Proconsul and **Propretor.** The administration of the Roman provinces was originally intrusted to pretors (q. v.), but at a later period, to proconsuls and propretors, with their assistants, the questors (q. v.) and legates (q. v.). The consul and pretor received the name, the former of *proconsul*, the latter of *propretor*, at the expiration of their offices, when they went into the provinces, as governors. After the Roman empire had been extended over many countries, it was provided by a law of C. Sempronius Gracchus, that, at the consular and pretorial *comitia*, the senate should distribute the provinces into two *provincias consulares*, and six *prætorias*, for which the consuls and pretors should cast lots or divide them among themselves by agreement, a few days after their entrance upon office, after the expiration of the term of which, they became the governors of the provinces allotted to them. The duties of these provincial magistrates were the administration of justice, the supervision of other affairs of the province, and the command of the troops which were stationed in it. The term of office was usually a year, sometimes two, and rarely three or more. Within thirty days after his return to Rome, the provincial governor was bound to make a report of the acts of his government and of the state of the province. If he had permitted any acts of injustice or oppression, he could be impeached therefor; as for extortion (*repetundarum*), peculation or embezzlement of the public money (*peculatus*), or for abuses in regard to the army (*crimen* *majestatis*). Notwithstanding these precautions, the provinces were subjected to various oppressions and exactions. (See *Province.*)

Procopius, of Cæsarea; a Greek historian, a native of Cæsarea, in Palestine; imperial counsellor of Anastasius, also of Justin and Justinian, and secretary to Belisarius, whom he attended in his expeditions, of which he wrote the history; a senator and prefect of Constantinople, where he is supposed to have died, about 560. His works are, a History of his Own Times, in eight books, the first two relating to the Persian war, the two following to the war with the Vandals, and the remaining four to the Gothic war; and a History of the Edifices built or repaired by Justinian. A kind of scandalous chronicle of the court of Justinian, including a most degrading account of the personal history of the emperor, the empress Theodora, and many other individuals, and entitled *Anecdota*, has been attributed to him by some writers. His works were published at Paris (1662, folio).

Procris; daughter of Erechtheus and wife of Cephalus. (q. v.)

Procrustes; a celebrated robber of Attica, who had two bedsteads, one short and the other long. The monster placed his short guests in the long bed, and then, under pretence of fitting the bed to the occupant, stretched the latter till he died. If his guest was tall, Procrustes placed him in the short bed, and reduced him to the proper dimensions by cutting and clipping. Theseus finally served him as he had served others.

Proctor (from *procurator*), in the doctors' commons. (See *College of Civilians.*) In the English universities the *proctors* are two officers chosen from among the masters of arts, to superintend the scholastic exercises, to enforce the statutes, and to preserve the public peace.

Procurator, among the Romans; an agent, an overseer of an estate; at a later period, the title of a provincial officer, inferior to the governor (see *Province*, and *Proconsul*), who managed the revenue. In some of the small provinces, or in a part of a large province, the procurator discharged the office of a governor, and had the power of punishing capitally, as was the case with Pontius Pilate, in Judæa, which was attached to the province of Syria. In the civil law, the *procurator*, or *proctor*, answers to the *attorney* in the common law. (See *Advocate of the Crown.*)—*Procurator*, or *proctor*, in monasteries, is the conventual, to whom is intrusted the care of the temporal concerns. —*Procurator di San Marco* was the title of the chief officers or senators in the Venetian republic. Besides the nine actual *procuratori*, from among whom the doge was chosen, there were also many titular procurators, who paid a great sum for this title, which was much coveted by the Venetian patricians on account of the rank it conferred.

Procureur Général, Procureur du Roi. (See *Advocate of the Crown.*)

Prodicus. (See *Sophists.*)

Production. (See *Political Economy.*)

Prœtus; twin brother of Acrisius, king of Argos. They quarrelled with each other in their mother's womb. Acrisius banished Prœtus from Argos. He fled to Jobates or Amphianax, king of Lycia, married his sister, and, by his aid, conquered the city of Tirynthus, and founded a small kingdom. Here Bellerophon (q. v.) took refuge with him. His daughters, the Prœtidæ, wandered about through Argolis and Arcadia, having become mad, either on account of their contempt of the mysteries of Bacchus, or of their derision of the statue of Juno. According to later traditions, they imagined themselves cows, and wandered through the fields with wild lowings; the same frenzy seized the other women of Argos also. Melampus cured them, and received a part of the kingdom. Perseus changed Prœtus into stone, by showing him the head of Medusa.

Profane; an epithet applied, in ancient times, to uninitiated persons who were not allowed to be present at the sacred services, particularly those of Ceres and Bacchus, but were obliged to remain outside of the temple. The Romans used the word in a wider sense, applying it to the vicious, in general. When every thing was prepared for the sacrifice, the priest exclaimed, *Profani sacris exeste.* The word was afterwards used by Christians in contradistinction from *sacred*, as *profane* literature. It was also applied to persons who treat sacred things with irreverence.

Professed. (See *Jesuits.*)

Profession; the act of taking the vows by the member of a religious order, after the novitiate is finished. (See *Monastic Vows.*)

Profile; in general, the view of an object from one of its chief sides, at which more or less of the other side is hidden from the eye; in particular, the contour of the human face, viewed from one side. The traits of character are often expressed with peculiar strength in the profile. A face which, when seen directly in front, attracts us by its rounded outline, blooming color, and lovely smile, is often divested of its charm, when seen in profile, and strikes only as far as it has an intellectual expression. On the other hand, it is often the eye alone which expresses the character strongly. It requires practice to judge accurately in viewing a profile, in which the marked often strikes too strongly, the soft too slightly. Only where great symmetry exists, connected with the preponderance of the intellectual over the sensual, will the profile appear finer than the front face. In the profile the facial angle appears. (See *Facial Angle.*) It is comparatively easy for the artist to draw a likeness in profile, yet he must be careful not to exaggerate the peculiar traits, lest he approach caricature, nor to weaken them, lest he detract from the expression of the face. As the profile indicates more particularly the intellectual character of man, it is natural that in children it should be insignificant. In 1818, professor Blumenbach received, from the present king of Bavaria, a skull of an ancient Greek, found in a tomb of Magna Græcia. It may be considered as a model of the antique Greek profile, in respect of beautiful form. The nose is connected in a straight line with the forehead, and thus would contradict the theory recently started, that the profile, exhibited in works of ancient Greek art, was not an imitation of nature, but, as De Pauw asserts, merely a style adopted arbitrarily in various schools. In the case of buildings, mountains, &c., the outline, viewed from one side, is also called the *profile.* In regard to the profile of a mountain, which is a subject of much importance to the engineer, we may remark, that every mountain admits three different views; one, from the summit or one of the declivities; another, from the opposite declivity; and a third, from the adjacent country, when it is seen in profile. The last view is the best for obtaining a correct estimate of the angle of declivity, and representing it in a plan. The profile of a mountain is of importance to the architect, the farmer, and to the soldier, in the building of roads and aqueducts, in the cultivation of the soil, in the march and especially in the disposition of troops, particularly of artillery, which is more or less difficult according to the greater or less steepness of a country. In architecture, the importance of the profile of heights has been long understood; but, in the military art, it was first fully understood in modern times, that a correct view of the country is of the greatest importance, alike to the artillerist, the engineer, and the general officer; and much precision has been obtained, by taking the horizontal level, shown by standing water, as a basis, by a comparison with which, or with its parallels, the angle of every declivity must be determined. Small differences are generally neglected, and the declivity marked only in divisions of five degrees. Major Lehmann, who has highly distinguished himself by his labors in this branch, has gone still further; he has invented a projection, so that what could formerly only be represented by drawing the profile of a mountain, viz. the angle of the declivity, and the kind of troops it will allow to act, is rendered immediately evident by a projection, in which the observer is supposed to be stationed perpendicularly over the object represented. He obtains this end by making the lines, which represent the declivity of a mountain on a plan, blacker and closer together, if the declivity is great, and finer and farther apart, if it is slight. Total white represents a perfect plain; total black a declivity of 45° as the steepest that can be met with, unless it be a wall of rock, and consequently impassable; fine widely separated lines indicate a slope of 5°; broader and closer lines one of 10°; still closer lines one of 15°, and so on for every 5°, to 45°. The whole is founded on mathematical principles, and on the fact, that, to an observer, the declivity in a landscape will appear shaded in proportion to its inclination, while a level plain will appear in the strongest light, without shade. Plans projected in this manner are of the greatest service in the field, because they appear to a practised eye like a perfect picture. It is even possible to draw the profile of a mountain from a plan well executed in Lehmann's manner.

Progne, Procne. (See *Philomela.*)

Prognosis; the foretelling the event of diseases from particular symptoms. Those symptoms which enable the physician to form his judgment of the cause or event of a disease are called *prognostics.*

Progression, in arithmetic and algebra; a series of numbers advancing or proceeding in the same manner, or according to a certain law, &c. Progression is either arithmetical or geometrical. —*Arithmetical progression* is a series of three or more quantities that have all the same common difference; as 3, 5, 7, &c., which have the common difference 2.—

Geometrical progression is a series increasing by a common multiplicator, so that each term contains the preceding a certain number of times.

Prohibitive System. (See *Political Economy.*)

Projectile; a heavy body, which, being put in motion by an external force impressed upon it, is dismissed from the agent and left to pursue its course; examples of projectiles are a stone thrown from the hand, a bullet from a gun, &c. The theory of the motion of projectiles is a part of higher mechanics, and is of great importance in the science of gunnery. Bodies may be projected perpendicularly, horizontally or obliquely, and are acted upon both by the force of projection and the force of gravity; the path which they describe must therefore depend upon the ratio of these forces. Besides these two elements, a third is presented by the resistance of the medium (as, for instance, the air) through which the projectile is driven. When the direction of the projecting force is perpendicular, the path of the projectile is a right line; if it be downward, the motion is accelerated by the force of gravity; if upward, it is retarded, and finally annihilated, and the body then falls by its mere gravity. But in the case of horizontal or oblique projection, when the direction of the projecting force and that of the force of gravity form an angle with each other, the result is a curvilinear motion; and, according to the laws of falling bodies, discovered by Galileo, the path of the projectile, setting aside the resistance of the air, is a parabola. The principles deduced from the laws of Galileo constitute the theory of the parabolic motion of projectiles, in which they are considered as moving in a non-resisting medium. The problem to determine the effect of the resistance of the air is, however, of great practical importance, and was first solved by Tempelhof in his *Bombardier Prussien.* (See the articles *Mechanics*, and *Parabola.*)

Projection, in perspective, denotes the appearance or representation of an object on the perspective plane. (See *Perspective.*)

Projection of the Sphere in Plano is a representation of the several points or places of the surface of the sphere, and of the circles described upon it, according to the places which their images occupy, upon a transparent plane placed between the eye and the sphere, or such as they appear to the eye placed at a given distance. The principal use of the projection of the sphere is in the construction of planispheres, maps and charts, which are said to be of this or that projection, according to the several situations of the eye and the perspective plane, with regard to the meridians, parallels, and other points or places so represented. The most usual projection of maps of the world is that on the plane of the meridian, which exhibits a right sphere, the first meridian being the horizon. The next is that on the plane of the equator, which has the pole in the centre, and the meridians the radii of a circle, &c. The projection of the sphere is usually divided into orthographic and stereographic, to which may be added gnomonical. *Orthographic projection* is that in which the surface of the sphere is drawn upon a plane cutting it in the middle; the eye being placed at an infinite distance vertically to one of the hemispheres. *Stereographic projection of the sphere* is that in which the surface and circles of the sphere are drawn upon the plane of a great circle, the eye being in the pole of that circle. *Gnomonical projection of the sphere* is that in which the surface of the sphere is drawn upon an external plane commonly touching it, the eye being at the centre of the sphere.

Prolegomena (*Greek*); preliminary observations, serving as an introduction to a work, to which they are prefixed, and containing historical, critical, &c. illustrations of its contents, language, form, &c.

Prologue, in dramatic poetry; an address to the audience, which precedes the piece itself, that is, the proper action. It may be either in prose or verse, and is usually pronounced by one person. Among the ancients, the player who delivered this address was called the *prologus*, and was usually considered as a person of the drama. Thus in the *Amphitryon* of Plautus, Mercury appears as *prologus*. Prologues sometimes relate to the drama itself, and serve to explain to the audience some circumstance of the action, sometimes to the situation in which the author or actor stands to the public, and sometimes have no immediate connexion with either of these persons or subjects. (See *Epilogue.*)

Prometheus, a Titan, son of Japetus and Clymene, a daughter of Oceanus; Æschylus makes Themis, Apollodorus Asia, his mother. He was the father of Deucalion. Cunning and fertile in expedients, he opposed Jupiter, the founder of the new race of the gods, whom he had at first supported; and when some of the Titans proposed to expel Saturn from the throne, and elevate Jupiter in his place, Prometheus advised them to work by cunning, as it had been revealed to him by Themis and Earth, that cunning, and not force, would be victorious. But they neglected his advice, and Prometheus went over to the side of Jupiter, who became victorious through his counsels. Jupiter, who despised poor mortals, determined to extirpate them, and to create a new race. But Prometheus prevented him, by secretly bestowing on men the fire which had been concealed by Jove, and teaching them the arts. To punish this offence, Jupiter sent down Pandora (q. v.), who brought all kinds of diseases into the world. He caused Prometheus himself to be chained by Vulcan on a rock of the Caucasus (the eastern extremity of the world, according to the notions of the earlier Greeks), where his liver, which was renewed every night, was torn by a vulture or an eagle. But Prometheus, knowing that from Io's race would spring a man (Hercules), who, after having encountered innumerable hardships, would deliver him from his chains, suffered with heroic firmness; he was even acquainted with the future fate of Jove, which was unkown to the god himself. When the irresistible enemy of Jupiter, generated by himself and Thetis, should appear, then Prometheus was to find a termination of his sufferings. Jupiter must then be reconciled to him, because his fall could only be prevented by the counsels of Prometheus. These are evidently two traditions united by Æschylus. The cause of Jupiter's anger against mortals, and determination to destroy them, is thus related by Hesiod. The gods once attempted to make an agreement with men at Mecone, the object of which was to determine what honors the gods should enjoy, and what duties men should owe them for their protection. Prometheus appeared for men, that the gods might not impose too burdensome duties upon them, in return for their protection. A bull was brought as an offering, from which the gods were to select what portion they chose for their share. After it was cut up, Prometheus formed two heaps; in the one he placed the flesh and the fat entrails, wrapped in the skin of the bull, and covered with the stomach; in the other pile he placed the bones, artfully concealed in the fat. Jupiter, who did not see through the trick, chose for the gods, and selected the fat, in which he was indignant to find only the bones. Hesiod adds, that from that time it became the custom to offer to the gods bones without flesh. In Lucian's dialogue, called *Prometheus*, Prometheus is accused not only of this division of the flesh, and of stealing the fire, but also of having created man. According to Apollodorus, he formed man of clay and water, and bestowed on him fire, by kindling dry wood at the sun. Plato relates that the gods had made the races of animals from earth and fire, but that they left to Prometheus and his brother, Epimetheus (the husband of Pandora), to arrange the proportion in which these materials should be assigned to each. Epimetheus had distributed the best powers among the irrational animals, and Prometheus, that man might not be left altogether helpless, obtained for them by stealth, from Vulcan and Minerva, the arts of fire. Others, poets as well as philosophers, have modified this mythus, according to their particular object. (See Welcker's *Die Æschylische Trilogie und die Kabirenweihe zu Lemnos.*)

Promissory Note. (See *Bill of Exchange.*)

Pronoun (*pronomen*); a word which stands instead of another word, or of a sentence, and the use of which is to prevent repetition. Pronouns are of several sorts. Personal pronouns indicate directly a person or thing, as *I, thou, he, it:* demonstrative are those which relate to a present subject, as *this, that:* relative refer to some subject previously mentioned, as *who, which:* interrogative refer to some unknown subject: possessive indicate possession, as *mine, his.* Other divisions, as *reciprocal, indefinite,* &c., are sometimes made.

Pronuba. (See *Juno.*)

Prony, Gaspard Clair François Marie Riche de; a French geometrician and mechanical philosopher, member of the academy of sciences and of the legion of honor, and for some time professor in the polytechnic school, and first engineer of roads and bridges. He is the author of many valuable works. Among them are the *Nouvelle Architecture hydraulique; Recherches physico-mathématiques sur la Théorie des Eaux courantes; Leçons de Mécanique,* &c.

Proof. (See *Evidence.*)

Proof Impression. (See *Impression,* and *Avant la Lettre.*)

Propædeutics (from προπαιδεύω, to prepare for instruction); a term used by the Germans to indicate the knowledge which as necessary or useful for understanding or practising an art or science, or which unfolds its nature and extent, and the method of learning it. It is applied, therefore, not only to special introductions to particular branches of study, but also to auxiliary sciences, logic, philology, &c., and the encyclopædic views of particular branches of science which facilitate an insight into the relations of the parts. Such a survey can be presented only by one who has studied a science in all its ramifications. The term *propædeutics* is often, of course, merely relative: thus philology belongs to the propædeutics of history, while it is itself the main study of a certain class of scholars. The term, however, in its common use, is generally restricted to the body of knowledge, and of rules necessary for the study of some particular science—rules which originate in the application of the general laws of science or art to a particular department. Thus we find in the catalogues of lectures to be delivered in German universities medical propædeutics, &c., enumerated.

Propaganda; a name generally given to those institutions by which Christianity is propagated in heathen countries, more particularly to those which were established in the seventeenth century, and especially that erected by the papal court, for the extension of its own power and the Catholic religion among those who were not Christians or Catholics. It was called the *congregatio de propaganda fide* (society for propagating the faith), and was founded by Gregory XV, in 1622. It consisted of eighteen cardinals and some papal ministers and officers of the college; and its object was to arrange and direct all measures relating to the extension of the Catholic faith and the extirpation of heretics. Connected with this was the *collegium seu seminarium de propaganda fide*, instituted by Urban VIII, 1627, for the education of missionaries. Each society met once a week, in the presence of the pope, in a palace built for the purpose. Converts to the Catholic church, who had come to Rome, were instructed and supported by them. Bishops, and other clergy who had been expelled, were also received and supported. The Roman propaganda had a press celebrated for the numerous works which issued from it. Thence breviaries and missals were sent to all parts. Missionary societies for the propagation of the Christian religion have been formed in Protestant countries on this model. (See *Missions*.) In the time of the French revolution, secret societies, whose object was the propagation of democratical principles, were called *propaganda*. *Propaganda* has therefore come to signify any kind of institution for making proselytes.

Proper Names. (See *Names*.)

Propertius, Sextus Aurelius, a Latin elegiac poet, born at Mevania, in Umbria, was the son of a Roman knight, who had been banished by Augustus, on account of his attachment to Antony. He did not possess the natural ease and grace of Ovid and Tibullus, but is distinguished for his art and ingenuity, and the brilliancy of his style. He is particularly happy in his descriptions of heroic scenes. We have four books of his elegies. The last of the fourth book is the most highly esteemed, and is often called the "queen of elegies;" yet it is not wholly free from the usual fault of the author—a straining after originality of expression. Love is the subject of many of his elegies, but not a noble, spiritual love, which, indeed, we must not look for in any Roman poet of that age, although all were not so entirely abandoned as Propertius to licentious descriptions. There are also in the fourth book several poems which, although written in the elegiac measure, yet, from their subjects, belong to the class of didactic and narrative poems. He makes a display of his learning when he handles subjects of mythology, and therefore affects our feelings less. In general, he imitates the Grecian elegiac poets, particularly Callimachus the Alexandrian. We know nothing more of his life than that, after the end of the civil war, he found a patron at Rome in Mæcenas, through whom he obtained the favor of the emperor. He appears to have been the bosom friend of Ovid, to have lived mostly in Rome, in the enjoyments of love and poetry, and to have died there in the prime of life (about 12 years B. C.). The elegies of Propertius are usually published with the poems of Tibullus and Catullus. The best editions are by Brouckhusius (Amsterdam, 1702 and 1727, 4to.), Vulpius (Padua, 1755, 2 vols.), and Burmann and Santen (Utrecht, 1780, 4to.). The latest large critical edition, with a commentary, is by Kuinöl (Leipsic, 1804—5, 2 vols.), and by Lachmann (Leipsic, 1816).

Property, Literary. (See *Literary Property*, and *Copyright*.)

Prophets; among the Hebrews, inspired teachers sent by God to declare his purposes to his people. The Jews distinguish the authors of the sacred books into the older and later prophets. The former are the authors of the books of Joshua, Judges, Samuel, Kings and Chronicles; the latter are Isaiah, Jeremiah, Ezekiel, and the twelve minor prophets. David and Daniel they do not call prophets, because they did not live in solitude. Moses they do not include in this classification, but rank him apart by himself. Besides the writers of the sacred books, we find mention of other prophets among the Hebrews, who were sent to warn or instruct that wayward race, and who were sometimes not only endowed with the gift of prophecy, but with the power of working miracles, such as Elijah, Elisha, &c. Samuel, the last of the judges, founded the school of the prophets, in which young men of all the tribes were instructed in the law and sacred poetry. From these schools proceeded the preachers mentioned in the Old Testament, who purified and exalted the religious and moral system of their nation, defended the Mosaic theocracy against the encroachments of the kings and the laxness of the priests (who were occupied merely with religious rites), and foretold the fate of states, with warnings, denunciations, and consolatory prophecies. The deep sense and religious fire of these men, so far before their age, present a phenomenon that can be explained only by the special action of divine influences. They appear, therefore, as messengers of God, divinely inspired seers; and their preachings and songs were preserved by the Hebrews as the word of God, and among them were rendered more impressive by their connexion with poetry and music. Their constant object was the preservation of the doctrines of revelation in their purity. The originality, richness and sublimity of their writings still awaken the admiration even of those who deny them the character of prophecies. The writings of the prophets form one of the three canonical divisions of the Old Testament, and consist of sixteen books. (See *Bible.*) Four are the books of Isaiah, Jeremiah, Ezekiel and Daniel, called the "greater prophets," from the length of their writings; the other twelve, of the "minor" or "lesser prophets," so called from the shortness of their writings, namely, Hosea, Joel, Amos, Obadiah, Jonah, Micah, Nahum, Habakkuk, Haggai, Zechariah, Zephaniah and Malachi. (*See the articles.*) Although most Christians consider the prophecies of the Messiah contained in these books as one of the evidences of the truth of Christianity, yet some reject this argument. Among the latter are the German rationalists of the present day. (See Sherlock, Newton, Faber, &c., on the prophecies; and the works of Eichhorn (*Die Hebräische Propheten*, 1812, 2 vols.) and Rosenmüller.) In modern times, religious fanatics have frequently pretended to be prophets, without being able to demonstrate their claims to the title. The seventeenth century, in particular, was fruitful in prophets and prophetesses; and, even in the beginning of the eighteenth century, the prophets of the Cevennes excited a temporary attention. (See *Cevennes*, and *Camisardes.*) They were called, in England, the "French prophets." The subjects of their prophecies were the appearance of Antichrist, judgments against the city of London, &c. They were condemned, as false prophets and disturbers of the public peace, to fines, and to the pillory.

Propolis. (See *Bee*, vol. ii, p. 30.)

Propontis (so called by the ancients, from the bordering kingdom of Pontus); the sea lying between the Ægean and the Black seas, and connected with them by the Hellespont and the Thracian Bosphorus; now called, from the largest of its islands, the *sea of Marmora.*

Proportion is the equality of two ratios. The comparison of two magnitudes, in mathematics, may be effected in two different ways: it may be determined by how many units the one is greater than the other (difference); or one magnitude may be taken as the measure of the other, and it may be determined how often it is contained in it (quotient). The former relation is called an *arithmetical* proportion, the latter a *geometrical* proportion. The difference in the arithmetical, and the quotient in the geometrical proportion, are called the *ratio* of the proportion. Every proportion consists of four *terms*, two *extremes* and two *means*. A proportion in which the two means are equal is called a *continual* proportion; one in which they are unequal, a *discrete* or *interrupted* proportion. As, in every arithmetical proportion, the sum of the extremes is equal to that of the means, and, in geometrical proportions, the product of the means is equal to the product of the extremes, either extreme (or mean) may be found in the former, by subtracting the given extreme (or mean) from the sum of the given means (or extremes); in the latter, by dividing the product of the means (or extremes) by the given extreme (or mean). The mean of a continued arithmetical proportion is found by taking half of the sum of the extremes; an extreme, by subtracting the given extreme from double of the mean. In a continued geometrical proportion, the mean is found by extracting the square root of the product of the extremes; and an extreme, by dividing the square of the means by the given extreme. If we make the fourth term of the proportion the mean of a new continued proportion, and so on, as, for instance, $8 : 11 = 11 : 14$; $11 : 14 = 14 : 17$; $14 : 17 = 17 : 20$, &c., or $4 : 8 = 8 : 16$; $8 : 16 = 16 : 32$; $16 : 32 = 32 : 64$, the numbers 8, 11, 14, 17, 20, form an arithmetical progression, and 2, 4, 8, 16, 32, &c., a geometrical progression.

Propretor. (See *Proconsul.*)

Propylæa (Greek προπυλαια); the splendid entrance to a temple among the Greeks, a square before the temple, surrounded with a portico; on the square in the open air stood the altar. The term was employed particularly in speaking of the superb vestibules, or porticoes, conducting to the Acropolis, or citadel of Athens, which formed one of the principal ornaments of the city. This magnificent work, of the Doric order, was constructed by Pericles, after the designs of Mnesicles, one of the most celebrated architects of his age. Pausanias says it was covered with white marble, remarkable for the size of the blocks and the beauty of the workmanship. Stuart, in his Antiquities of Athens, Le Roy, in his Ruins of Greece, and the Travels of Anacharsis the Younger, mention the relics of the propylæa,

Prorogation, in England; the continuance of parliament from one session to another, as adjournment is a continuance of the session from one day to another, or for a longer period. Prorogation determines the session; but adjournment, though for a fortnight, month, &c., does not. After a prorogation, any bill which has previously passed both houses, or either house, without receiving the royal sanction, or the concurrence of the other house, must be taken up *de novo*. Parliament is prorogued by the royal authority, either by the lord chancellor, at the king's command, or by proclamation. In France, the king also prorogues (*proroge*) the chambers (art. 42 of the charter of August, 1830). In the U. States, the term *adjournment* is used both for prorogation and adjournment, properly speaking. Congress is adjourned (prorogued) by the concurrent vote of the two houses; but, in case of their disagreement, the president is authorized by the constitution to adjourn them.

Proscenium (προσκηνιον), in the Roman theatres; the place before the scene, where the actors appeared. It was also called *pulpitum*, and was colored red, by being sprinkled with crocus-water, for the sake of the perfume. It was somewhat lower than the *scena*, but higher than the orchestra, which was in front of it. The place behind the scene where the actors dressed and undressed was called *postscenium*. (See *Theatre.*)

Prose (generally derived from *prorsa* (*oratio*), the reason of which will be given in the course of the article). The true character of prose can be clearly conceived only by considering it in relation to poetry. (q. v.) Their difference lies in the essential difference of certain states of the mind and feelings. The two chief states of the inward man may be called the *thinking* and the *poetical* states, and depend upon the predominance of the understanding, or the imagination and feelings. If we think (in the narrower sense of the word), we combine ideas according to the laws of reason; and prose which is the language of sober thought, is characterized by the abstractness, generality or precision which belongs to the ideas that occupy the understanding. When the mind is in a poetical state, that is, when the imagination or feelings are strongly excited, then it seeks for language which shall affect immediately the imagination and feelings of others. Warmth, liveliness, individuality, therefore, characterize the language of the poet. A full consideration of the distinguishing features of prose, whose province is fact and opinion, and of poetry, which deals with emotions, would afford room for much interesting discussion; but this our limits preclude. Two of the chief instruments of poetry are imagery and rhythm. It calls in beauty of sound to aid beauty of sense. Clearness and precision are the chief aim of prose; and every thing else must, if necessary, be sacrificed to them; yet man, striving always to combine the beautiful with the useful, does not entirely dispense with musical sounds in prose; and, though he does not subject it to the strict rules of metre, yet he arranges the words so as to please the ear by their measured cadence (*numerus*). It is wrong, however, to make verse the distinguishing feature of poetry. How much versified prose exists! and how much poetry, unadorned by metrical language! Metre is a mere consequence of the character of poetry, and does not constitute it. Prose and poetry cannot be strictly defined, but often run into each other, and many compositions which are called prose have much of a poetical character; for instance, some of the proclamations of Napoleon to his army. Prose, however, in the most common acceptation of the word, is used in contradistinction to metrical composition; hence it is called, by the Romans, *oratio soluta*. The external form naturally strikes first, and, in the early stages of society, strikes most; hence the term *prose*, which, as we have already stated, is generally derived from *prorsus*, *prorsa oratio* (progressive speech), opposed to *verse*, which is derived from *versus* (backwards), returning always to the selected metre. The Greeks called prose *ὁ πεζος λογος*, which the Romans translated *pedestris oratio*; and St. Evremond compares prose writers to modest pedestrians. Some have added to the divisions poetry and prose a further division, eloquence, considering the third either as partaking of the nature of both the others, or as essentially differing from both. From what has been said of the difference betweeen prose and poetry, it is clear that poetry must be much earlier developed than prose, because feeling and imagination prevail most with nations in their early periods. We do not mean merely that poetical compositions preceded prose compositions, but the common way of viewing things and expressing thoughts, in early periods, was in images. Histories, laws (*νομοι*), and philosophical maxims, were first conveyed in verse with the Greeks, and many other nations, and, with all, certainly had a symbolical, poetical character. Pliny says that Pherecydes of Scyros (a contemporary of Cyrus) first formed the Greek prose (*prosam primus condere instituit*); but perhaps he was only the first who wrote on philosophico-mythological subjects in prose. Fine prose is among the latest attainments both of nations and individuals; and it would appear that, with most nations, classical prose writers are fewer than classical poets.

Proselyte (*Greek*, a stranger; newcomer), in religion; he who leaves one religion for the profession of another; in general, he who changes his religious party, or any other party. The Jews had two classes of proselytes, viz. the "proselytes of the gate," as they were termed, and the "proselytes of righteousness," or of the covenant. The first were those who renounced idolatry, and worshipped the only true God, according to the (so called) seven laws of the children of Noah, without subjecting themselves to circumcision and the other commands of the Mosaic law. They were only admitted to the court of the temple, and stood at the door of the inner temple, whence their name. They had the right of dwelling in the land of Israel, but only in suburbs and villages. Under Solomon, there were 150,000 such proselytes, who labored in building the temple, and were descended from the Canaanites (2 *Chron.* ii, 17, 18). The proselytes of righteousness were persons who had been fully converted from paganism to Judaism, had been circumcised, and bound themselves to observe the Mosaic law. Before their circumcision, they were examined respecting the grounds of their conversion; after their circumcision, they received baptism, being immersed, with their whole body, in a cistern full of water, on a festival, in the presence of three judges. This baptism, known under the name of *proselyte baptism*, was repeated in the case of those children of a proselyte, who had a heathen mother. Boys under twelve, and girls under thirteen, could not become proselytes without the consent of their parents, or, in case of their refusal, the aid of the magistrates. By the baptism, every one was considered as born anew, so that his parents were no longer regarded as such, and slaves thus baptized were set free. Respecting the antiquity of Jewish proselyte baptism, there has been much controversy. The rabbins taught that the proselytes of righteousness received from heaven a new soul and a new essential form. The Mosaic laws, moreover, excluded some persons from the privileges of proselytes, sometimes for ever, sometimes for a certain period (*Deuteronomy* xxiii, 1—5). That there were proselytes of the first kind, in the time of Jesus, seems to be intimated by the fact that Jesus objected to the Pharisees that they compassed sea and land to make one proselyte, and made him a greater sinner than before (*Matthew* xxiii. 15).

Proserpine (*Greek*, Persephone, Persephoneia); according to some, the daughter of Jupiter and Styx; or, according to the more usual tradition, the daughter of Jupiter and Ceres. Pluto carried her off, with the consent of Jupiter, and made her his wife. This fable has been treated by several poets, and adorned in different ways. According to the Homeric hymn to Ceres, Proserpine was once dancing in the choir of nymphs, led by Minerva and Diana, in a grassy meadow. Leaving the dancers, she went with some of her companions to gather flowers. At the prayer of Pluto, and with the consent of Jupiter, the earth produced a hundred blooming narcissuses, from one root, and gods and men were astonished at their beauty, and delighted by their odor. The maid eagerly gathered them, and, beguiled by their magic power, she wandered from her companions. Suddenly the earth opened, and Pluto rose from the chasm, with his immortal steeds, seized Proserpine, and carried her, in a golden chariot, to the lower world. She called loudly on her father for protection, but in vain; no one heard her cries except Hecate and the Sun. Claudian is still more circumstantial in his account. He sings that the beauty of Proserpine had inflamed all the gods with love, particularly Mars and Apollo. In order to deliver her daughter from the importunities of her lovers, Ceres concealed her in a cavern in Sicily, where, with her nurse Calligena, she was watched by dragons. Pluto begged her of Jupiter for a wife; he consented, and ordered Venus to entice the maid out of the cavern by artifice. Venus went to Sicily in company with Minerva and Diana, and not finding the watchful mother at home, they easily persuaded the girl to go to walk. She went out, therefore, in company with the nymphs and zephyrs, to pluck flowers in the blooming fields. Suddenly the earth opened, and Pluto bore the astonished maiden to the lower world, while Jupiter signified his approbation by his thunder. In vain did Jupiter attempt to obtain her mother's consent to her marriage with Pluto, and he at length granted her permission to return to the upper world, provided she had not tasted any of the food of the gods. But while walking through the lovely fields of Elysium, she had eaten a pomegranate, and all that Jupiter could grant to the prayers of her afflicted mother was, that she should spend the spring and summer of each year in the upper world. (See *Ceres.*) The Orphic hymns call her the mother of the Eumenides and Ebuleus (Bacchus), the only begotten, the venerable wife of Pluto, the queen of the shades, the avenger of perjury, the companion of the Hours, the all-ruling maid, the fruitful, the nourishing, the goddess of spring. She brings all things to light, amuses herself in the fragrant meads, and adorns her sacred bosom with green herbs; she is the resplendent and horned goddess; she is also celebrated, under the name *Mise*, as the mother of Bacchus, the chaste, holy, the ineffable queen, having the form both of man and woman. In the mysteries, Proserpine was also the symbol of the soul confined in the body. She had no children by Pluto; but by Jupiter, who had intercourse with her in the form of a serpent, she had Zagreus. Jupiter gave her the island of Sicily, and the city of Agrigentum, in this island, was peculiarly sacred to her. She is represented sitting on a throne, by the side of her husband, with narcissuses or a pomegranate in her hand, or alone, holding the two-forked trident of her husband. She was also worshipped in Locris and at Megalopolis, and she had a celebrated grove near the lake of Avernus; in Rome, as at Megalopolis, she had a temple in common with Ceres, which men were permitted to enter only once a year. As goddess of the infernal regions, a black, sterile cow was offered to her; the pomegranate, the bat, and the winter, were sacred to her. She was worshipped, together with Ceres, in the Eleusinian mysteries. Pirithous and Theseus (q. v.), who attempted to carry her off, were obliged, according to some, to remain in the infernal regions. To Proserpine is ascribed the office of cutting off the lock of hair by which the dead were devoted to the lower world. At funerals of the dead, it was usual to smite the breast, as a mark of honor to her. The friends and servants of the deceased cut off their hair and threw it on the pile, to appease Proserpine. She is often confounded with Hecate. (q. v.) Gerhard has collected the ancient representations of Venus Proserpine, in his *Venus Proserpina illustrata* (Fiesole, 1826).

Prosody (from προς, to, and ᾠδη, song) treats of quantity, accent, and the laws of versification, and of all that affects the harmony of verse or prose. If we consider the elements of language (the vowels and consonants), we find that the sound dwells upon the vowel, and longer if several vowels stand together and combine to form one sound. Double vowels, therefore, and diphthongs, render syllables long. Further, as to consonants; if several follow each other, they also require the voice to dwell on them, and, therefore, likewise render the syllable long. Consonants following each other, without intermediate vowels, affect the length of the syllables by *position*, as it is called. The proportion of vowels and consonants is very different in different languages. (See *Consonants.*) Idioms, the principle of which is euphony (e. g. the Italian and Spanish), give a preponderance to the vowels, and avoid successive consonants. In the northern languages, on the other hand, the consonants prevail, and too often follow each other; but three in succession are less frequent, and prolong the sound still more. Three consonants, in German, would render a syllable long by position. Such a determination of the time, according to the proportionate weight of syllables, is called *quantity*, and languages, in which vowels predominate, incline more to quantity; on the other hand, idioms, in which consonants prevail, incline more to accent, as they determine the duration of the tone more by the logical priority of the syllables. The German language is of the latter sort, though the meaning or derivation does by no means always determine the length of the syllables in this language. The Germans have, moreover, distinct long and short syllables, like the Greeks and Romans, and of late have very much settled their prosody, so that they are enabled to write in all the ancient metres. The other modern languages of Europe, west or south of Germany, have not long or short syllables, properly speaking. The English language has no prosody, in the ancient sense of the word: its verse depends upon accent and the number of the syllables. (See *Rhyme*, and *Versification*.)

Prosopopœia. (See *Personification*.)

Protagoras; a Grecian philosopher, born at Abdera, in the middle of the fifth century B. C. He taught principally at Athens. He may be considered one of the first Sophists (q. v.) who travelled in Greece, reading his writings, holding public disputations, and giving instruction for pay. He was accused of atheism, and banished from Athens, and his writings were publicly burnt. He is said to have denied that there was any such thing as absolute truth, and to have applied his doubts of human knowledge to the most sacred and important subjects,—virtue and the existence of God,—maintaining that they might as well exist as not exist. How far this is true cannot be determined with certainty, because his writings are lost.

Protector, Cardinal. Every Catholic nation and religious order has a protector, residing in Rome, who is a cardinal, and is called *cardinal protector*.

Protector, Lord. (See *Cromwell*.)

Protector of Slaves. An officer entirely novel, and intended to give some legal protection to slaves, was created by the English ministry of earl Grey, by a British order in council, of Nov. 2, 1831, constituting in the colonies of Trinidad, St. Lucia, the Mauritius, British Guiana, and the cape of Good Hope, certain officers, called *protectors of slaves*. They are never to be proprietors of slaves; are to receive complaints of slaves against their masters and others; may summon the latter to appear before them; and institute a prosecution against them before the proper tribunal. If a slave is prosecuted before a court, notice must be given to a protector, who personally, or by an assistant protector, must be present at the trial, in order to protect the interest of the slave. The protector also keeps a register of all the slaves of his district; has the power to enter any plantation or building, where he believes slaves are ill-treated; to grant them marriage licenses, and to attend, in various other ways, to the preservation of good order among them.

Protector of the Confederation of the Rhine. (See *Napoleon*, and *Confederation of the Rhine*.)

Protesilaus, one of the Grecian heroes at Troy, was the son of Iphiclus, king of Phylace, in Thessaly, and of Diomedea. His original name was Iolaus, and he received the surname of Protesilaus, because he was the first of the Greeks who leaped ashore on their landing before Troy; but he was immediately killed by a Trojan warrior, according to some by Hector. His tomb was on the Sigæan promontory. He was honored as a hero after his death, and had an oracle at Elæus in the Chersonesus, particularly for athletæ; he also healed several diseases.

Protest; a solemn declaration of opinion, commonly against some act, particularly a formal and solemn declaration, in writing, of dissent from the proceedings of a legislative body, as a protest of the lords in parliament, or a like declaration of dissent by a minority of any body, against the proceedings of the majority. —In commerce, a formal declaration, made by a notary public, under hand and seal, at the request of the payee, or holder of a bill of exchange, for non-acceptance or non-payment of the same, protesting against the drawer and others concerned, for the exchange, charges, damages and interest. This protest is written on a copy of the bill of exchange, and notice is given to the endorser of the same, by which he becomes liable to pay the amount of the bill, with charges, damages and interest. (See *Bill of Exchange*.) The name of *protest* is also given to a like declaration against the drawer of a note of hand, for non-payment to a banking corporation, and of the master of a vessel against seizure, &c. A *protest* is also a writing, attested by a justice of the peace, or a consul, drawn by a master of a vessel, stating the severity of a voyage, by which the ship has suffered, and showing it was not owing to the neglect or misconduct of the master.

Protestantism includes the Protestant religion in its various forms, and the history of its developement, as well as the influence which it has had on mankind. This name, like many others in history, owes its origin to a circumstance comparatively insignificant. It originated in Germany, when those members of the empire who were attached to the reformation, protested (April 19, 1539), before the assembled princes, against the following resolve of the diet at Spire: "that, until a general council should be held, further innovations in ecclesiastical affairs should be avoided; the mass should not be any further abolished, nor its celebration be prevented in those places whither the new doctrine had already spread; no inflammatory sermons should be preached; and no vituperative writings be printed." In consequence of this protestation, they were called *Protestants*, and soon adopted this name themselves. To this protestation was added (April 25) a formal appeal to the emperor against every measure hostile to their faith. The word *Protestant* was afterwards adopted, also, in foreign countries; and when, in 1817, the centennial celebration of the beginning of the German reformation caused several controversies in Prussia, the government prohibited (June 30, 1817) the further use of the term *Protestant* in the country, as being obsolete and unmeaning, since the Protestants did not any longer protest, and ordered the word *evangelical* to be substituted for it. The numberless sects which have sprung up among the seceders from Catholicism, since the time of the reformation, and which are comprehended under the name of *Protestants*, all agree (however different their opinions on some important points may be) in rejecting human authority in matters of religion, taking the Holy Scripture as the sole rule of their faith and life, and adhering to particular creeds only as expressing the convictions in which all their members agree. (See *Reformation.*) The present number of the Protestants and Catholics is given in the article *Ecclesiastical Establishments*.

Proteus, according to the old Grecian mythology, a deified mortal, a soothsaying and wonder-working old man of the sea, who fed the *phocæ* of Neptune in the Ægean sea, and was said by wandering mariners to sun himself with his sea-calves, and to sleep at mid-day, sometimes on the desert island of Pharos, near the western mouth of the Nile, and sometimes on the opposite side of the Mediterranean, in Carpathus (the modern Scarpanto), between Crete and Rhodes. He prophesied only when compelled by force and art. He tried every means to elude those who consulted him, and changed himself, after the manner of the sea-gods, into every shape, into beasts, trees, and even into fire and water. But whoever boldly held him fast, to such a one he revealed whatever he wished to know, whether past, present, or future. Thus Menelaus surprised him (*Odyssey*, iv, 351), and compelled him to aid him by his prophecies and his counsel. Homer calls Proteus *Egyptian*, either in the literal sense, or to signify that he lived in the neighborhood of the river Egyptus. Later writers represented Proteus as a king in the time of the Trojan war, who, either by divine skill, or by an artful change of the ornaments of his head, could assume various forms. According to other accounts, which, perhaps, Virgil had in view, Proteus was a deified sorcerer of Pallene, a peninsula of Emathia or Macedonia. Disturbed by the profligacy of his sons, he went, in the time of Hercules, under the sea to Egypt, and in that unfrequented part of the sea kept the sea-calves of his master Neptune, who had given him the wonderful power of prophesying. The later mystics made him an emblem of primeval matter, and he is thus represented in the 24th Orphic hymn. This mortal-born sea-god now became a son of Neptune and Phœnice, or of old Oceanus himself and Tethys. Psamathe was his wife, by whom he had many sons and daughters, whose names are differently given. Any one who hastily changes his principles is, from this old sea-god, called a *Proteus*.

Prothéeite; a new mineral, found in the valley of Zillerthal, in the Tyrol. It occurs in rectangular prisms, with faces longitudinally striated; color chrysolite-green; lustre between glass and diamond; heavy; scratches glass; infusible before the blow-pipe, and is electric by friction.

Protocol (from the Latin *protocollum*); a record or register. In French, *protocol* means the prescribed formula for instruments accompanying certain transactions, and in German it signifies the minutes of any transaction. In the latter sense the word has, of late, been received into international law, and we hear much of the London *protocols* respecting Greece, Belgium, &c. The word comes from the Greek, and is used as early as in the fortieth novel of Justinian, which forbids the cutting the *protocollum* of charters—a short note, showing the year in which the paper or parchment was made, and the officer commissioned for the delivery of the instruments, by means of which frauds were frequently detected. (See Du Fresne's *Glossary*.)

Protogenes; a Greek painter, contemporary with Apelles, according to some, born in Rhodes, according to others, in Caria. (See *Apelles*.) Several masterpieces of his are mentioned, particularly a picture of Jalysus, who is said to have been the founder of the city of Rhodes. In this picture a hound was represented panting, and with froth on his mouth. Pliny relates, that for a long time the painter was unable to satisfy himself in the execution of the froth; but that, at last, in a fit of anger, he threw the sponge, with which he used to wipe off the colors, on the painting, and thus accidentally produced a natural representation of it. This picture saved the city of Rhodes, when it was besieged by Demetrius. In the time of Cicero it was still in that city, but Cassius carried it to Rome, and placed it in the temple of Peace, in which it was burnt during the reign of Commodus.

Protractor. An instrument for laying down and measuring angles on paper with accuracy and despatch, and by which the use of the line of chords is superseded. It is of various forms—semicircular, rectangular or circular.

Provençal Poets were romantic poets of chivalry, in the twelfth and thirteenth centuries, in the south of France and in Spain. These southern countries at that time bore the common name of *Provence*, which included, beside the country situated between the Rhone and the Var, Languedoc, Gascony, Auvergne and Burgundy. They were united in the beginning of the twelfth century, under Raymond Berengarius IV, previously count of Barcelona or Catalonia, and by marriage, count of Provence (as such, Raymond Berengarius I), and afterwards comprehended also Arragon, and a great part of the south of Spain. The people were called *Provençaux*, and were separated from the less polished French by the Loire. Southern France, already refined by colonies from Greece, and by its vicinity to the Romans, favored with a milder climate and a freer government, was, until the eleventh century, far in advance of the north in civilization, and possessed a language composed of Roman and Teutonic words, and so much distinguished for clearness, tenderness, sweetness and copiousness, that it was spoken by the higher classes even in Catalonia, Valencia, Majorca, &c. The language, the cultivation of the nobles by their intercourse with the East, particularly with the poetical Arabs, an imagination awakened, and an understanding enlarged by travel and adventure, a romantic spirit, and the wealth produced by commerce,—all these circumstances contributed to foster genius and to produce poetry. The poet sang of war and adventures, religion and love, and found encouragement and applause, particularly from the ladies, who were celebrated in his verses. The taste for poetry became general among the nobles and cultivated classes in Provence, and the princes, particularly Raymond Berengarius III and V, favored the poetical art. In their court, at that time the most refined and splendid in Europe, it was customary to collect a circle of noble poets. Poetry and song, accompanied by the lute, harp, or viol, were demanded at every feast, and many persons therefore wandered about to enliven festivals with such accompaniments. The words *Provençal* and *poet* became almost synonymous. Their songs, which were in rhyme, and which often proceeded less from poetic inspiration than from a spirit of imitation, are divided into three principal classes: 1. Canzonets, love songs and joyful (*soulas*), plaintive (*lais*), pastoral (*pastourelles*), and religious or didactic songs; 2. Sirventes, songs in honor of heroes and princes, in which class were included patriotic and war songs; 3. Tensons, sometimes on questions of gallantry, which were recited in the courts of love (*cours d'amour*). The favorite subjects were love and ladies; and the poets endeavored to rival each other in the praises of their mistresses; but they were less tender and chaste than the German *Minnesingers*. (q. v.) Although their poems, as a whole, are not much to our taste, they contain occasional fine passages (which must be read in the original, as their principal charm consists in the expression), and although they have little true poetical merit, as they consist rather of fantastic conceits and hackneyed rhymes, than of the outpourings of an elevated soul, yet it is not to be denied that they were of great advantage to that age, by forming the mind, enriching the language, exciting men to action, and ladies to make themselves worthy of love. The Provençal poets were also called *Romans*, and the Provençal language was called the *Romana*, as it was derived principally from the Latin. These poets were likewise called *Troubadours* (q. v.; in Italian, *Trovatori*), while the Norman-French poets of a somewhat later period, who wrote in French the nonsensical, conceited and absurd romances (the first of which was the tedious, but then popular, *Roman de la Rose*), heroic poems (of the twelve peers of Charlemagne, of the knights of the round table, and of the Amadisses), *Contes* and *Fabliaux*, and who were particularly favored by Charles VI, were called *Trouvères*, or *Trouveurs*. (See *France, Literature of*, division *Poetry*.) The oldest Troubadour, whose name and poems are known to us, is William, count of Poitiers and Guienne (born 1071), who sang the adventures of his crusade, although there must have been others who sang before him. Raynouard discovered a Provençal poem of the year 1000, in rhyme. The flourishing period of this school of poetry extends from 1090 to 1290, and its popularity was at its height about 1140, and at the time when Berengarius III received the investiture of Provence from the emperor Frederic I. Not only the nobles and many ladies in Provence, but many celebrated foreign princes (e. g. Richard the Lion-hearted), and the Italian nobles, partook of the enthusiasm in its favor. The charms of the Provençal poetry and language were more early widely felt in Italy (where Folchetto was the first known poet of this school), and in Spain (the country of the Limousin Provençal poets), where many princes were poets (Alphonso II, Peter III and IV), and later in Sicily. The history of Romeo de Villeneuve (the Pilgrim), who was minister of the tenth count of Provence, Raymond Berengarius (from 1206 to 1244), and who is praised by Dante, deals in the marvellous, and was considered by Baudrier (1635) as a romance. These materials have been worked up in a new form in the *Peregrinazioni ed Avanture del nobile Romeo da Provenza* (Turin, 1824). The decline of the Provençal poetry began in the fourteenth century, in the first half of which, prizes were offered (at Toulouse golden violets, afterwards silver marigolds and roses), for the encouragement of poets. The last whom Millot, the author of the principal work on this subject, *Hist. Littéraire des Troubadours* (Paris, 1774, 3 vols.), cites is Jean Esteve de Blesières (about 1286). At length this amusement became wearisome, the understanding took the place of fancy, the nobility lost their splendor, the princely patrons of poetry became extinct, the French line of kings who succeeded, favored the French language instead of the Provençal, and materials failed when the adventures of chivalry ceased to exist; no powerful Petrarch arose among the Provençals, and instead of the singers, who, if they really were Troubadours, were called *minstrels* (q. v.), succeeded actors and jugglers, who disgraced the name of Troubadours, and whose meanness soon caused the earlier and better poets to be forgotten. We have still much of the Provençal poetry left. Some of the pieces are religious romances. See Raynouard's *Choix des Poésies originales des Troubadours* (Paris, 1816—21, 6 vols.), to which collection is prefixed a *Grammaire Romane*; see also A. W. Schlegel's *Observations sur la Littérature Provenzale* (Paris, 1818).

Provence; one of the old provinces of France, lying in the south-eastern part of the country, on the Mediterranean, bounded on the north by Dauphiny, and on the west by Languedoc. Its natural boundaries were the sea, the Rhone, the Var and the Alps. The capital was Aix, and the province was divided into Upper and Lower Provence. The departments of the Mouths of the Rhone, the Lower Alps and the Var, with a part of that of Vaucluse, have been formed from it. Greek colonies were founded here at an early period (see *Marseilles*); and the Romans, having conquered the country (B. C. 124), gave it the name of *Provincia* (the province), whence its later name was derived. After the division of the empire of Louis le Débonnaire, it fell to Lothaire, and was afterwards a separate kingdom, under the name of the kingdom of Arles. In 1246, it passed to the house of Anjou by marriage; and, in 1481, on the extinction of the male line of that house, Louis XI united it to the dominions of the French crown. (For its language and literature, see *France*, division *Language*, and the article *Provençal Poets*.)

Proverbs are the flower of popular wit and the treasures of popular wisdom; they give the result of experience in a form made impressive by rhyme, alliteration, parallelism (q. v.), a pointed turn, or a comparison drawn from the most ordinary scenes and occurrences of life, which, by the force of association, makes their effect strong and permanent. Proverbs may be unassuming, lively, grave, or even sublime; their general character is *naiveté*. The habit of men, at the present day, to communicate so much with each other by writing, which, exciting the feelings less than conversation, leads to a less animated mode of expression, and the disposition to avoid what is common, springing from the pride of intellectual cultivation incident to an advanced stage of society, and various causes connected with the progress of civilization, make proverbs every day more unfashionable with the most civilized European nations, particularly the English, with whom the use of a proverb (except it be one of a foreign nation) is considered almost vulgar; and the same contempt for these jewels of the multitude has spread to us. Another reason for proverbs going out of fashion may be, that the better a proverb is, the more trite it becomes; and what is trite is vulgar, and what is vulgar is inelegant. Thus a public speaker could not use the proverb, "'Twixt cup and lip is many a slip," at least, not without some apology for its triteness, although the very triteness in this, as in most other cases (such as often quoted verses), proves merit; and even this homely proverb undoubtedly has often led to care and thoughtfulness. Proverbs often save long explanations by presenting a striking image; and many a lecture has probably been superseded by the French adage, "One spoonful of honey attracts more flies than a hundred barrels of vinegar." So they may be often used with effect to point the conclusion of a discourse. A period on the failure of men who strive beyond their capacity, might be well closed by the Arabian saying which Burckhardt mentions, "If God purposes the destruction of an ant, he gives her wings;" and the vanity of human resolutions could hardly be set in a stronger light than by the Portuguese proverb, "Hell is paved with good intentions"—a proverb which, until it has become familiar, is awfully impressive. It requires skill to apply proverbs elegantly and judiciously in common life. As to the general worth of proverbs, we would say, with one of their number, *Vox populi, vox Dei.* Yet there are many directly opposed to others, and they must always be received *cum grano salis;* they are general views of things, and "no rule without an exception." Proverbs are plain spoken. In their view, as in the eye of the law, all are equal. They take cognizance of the virtues, and vices, and follies, of all classes, without respect of persons. They pierce the object at which they aim; and this, in fact, gives them currency, and makes them what they are. Boileau speaks of happy expressions,

> *Qui, par le prompt effet d'un sel réjouissant,*
> *Deviennent quelquefois proverbes en naissant.*

Such a phrase is Napoleon's, "There is but one step from the sublime to the ridiculous," which may be almost said to have become a proverb, as is the case with many other expressions struck out in happy moments, or proceeding from conspicuous persons. The proverb is nearly related to the motto, symbol, device, sentence, apologue, fable, &c.; and the limit cannot always be easily drawn. Burckhardt gives us the following as Arabic proverbs: The wolf was asked, "For what art thou following those poor little sheep?" He replied, "The dust upon which they tread is good for my poor little eyes." And this: one man said to another, "O slave, I have bought thee." "That is thy business," replied he. "But wilt thou run away?" "That is my business," replied he. These, having at once a narrative character, and a concise, pointed expression, partake of the nature of the apologue and the proverb. Certain sallies of popular humor, ludicrous personifications, &c., which are frequently repeated, are sometimes called *proverbs;* as, "What a dust we kick up, as the fly said to the cart-wheel." Proverbs, being the offspring of popular feeling and experience, often serve, of course, to keep alive the recollection of peculiar views and customs; and a collection of the sayings of different nations would form an exceedingly useful and interesting work. Burckhardt collected, at Cairo, a number of Arabic proverbs, which have been published, in a quarto volume, under the title Arabic Proverbs, or the Manners and Customs of the Modern Egyptians (London, 1830). Sailer has published the Wisdom of the Streets, or the Meaning and Use of German Proverbs (Augsburg, 1810, in German). Many other collections of German proverbs exist, but none very complete. The East, the region of imagination and metaphor, abounds in proverbs; and the southern countries of Europe, Portugal, Spain and Italy, have many more than the cool, reflecting North.

Proverbs, Book of. (See *Solomon.*)

Providence, the largest place and only city in Rhode Island, is situated at the head of the tide-waters of Narraganset bay, about thirty miles from the Atlantic ocean, and is forty miles south-south-west of Boston, fifteen north-north-west of Bristol, thirty north of Newport, fifty-eight north-east of New London, seventy east of Hartford, 190 north-east of New York, 394 north-east of Washington; lon. 71° 26′ W.; lat. 41° 51′ N.: population, in 1820, 11,767; in 1825, 15,941; in 1830, 16,832; in 1832, about 20,000. It is thus the second town in New England, in point of population. It is built on both sides of what is usually styled *Providence river*, which is only an arm of the bay reaching to the mouth of Mooshasuck river, at the upper part of the city, its two sections being connected by two bridges, one ninety feet in width. Vessels of nine hundred tons burthen can come to the wharves. The buildings are chiefly wood, uniformly painted white, though there are many of granite and brick. Some of the dwelling-houses are spacious and elegant, and those on the high ground on the eastern side of the town are remarkable for beauty of situation. The chief public buildings are the state-house, of brick; the arcade, of granite; fourteen houses of public worship; the halls of Brown university; the Dexter asylum; the Friends' boarding-school; five public school-houses, and several large manufacturing establishments. The arcade is the most splendid building of the kind in the Union; it has two fronts, of hammered granite, each seventy-two feet wide, presenting colonnades, of the pure Grecian Doric, of six columns each. The columns are twenty-five feet high, the shafts being twenty-two feet in length, each of a single block. The body of the building is of split stone, covered with cement, and extends from street to street, in length 222 feet. It was finished in 1828, and the whole cost was about 130,000 dollars. Of the churches, the first Baptist, the two Unitarian, and one of the Episcopal (St. John's), are handsome structures. Brown university (originally founded at Warren, in 1764, and removed to Providence in 1770) takes its name from Nicholas Brown, its most munificent benefactor. It has two halls, both of brick, viz. University hall, four stories high, 150 feet long, and forty-six feet wide, containing fifty-one rooms for officers and students, besides a chapel, library and philosophical room; and Hope college, built in 1822, four stories high, 120 feet long, forty wide, with forty-eight rooms for officers and students. They are placed on some of the highest ground in the city. The college library contains about 6000 volumes. Three other libraries within the walls, belonging to literary societies, present an aggregate of 6000 volumes, in addition. The government of the university is vested in a board of fellows, consisting of twelve members, eight of whom, including the president, must be Baptists; and a board of trustees, of thirty-six members, twenty-two of whom must be Baptists, five Friends, five Episcopalians, and four Congregationalists. The acting officers of instruction, at present, are the president, three professors, and two tutors. There are 114 students. The philosophical apparatus, which has recently been largely increased by private munificence, may be considered very extensive and complete. Annual commencement on the first Wednesday of September. There are three vacations; one, from commencement, four weeks; one, from the last Friday of December, six weeks; and one, from the second Friday of May, three weeks. Whole number of graduates to 1827, inclusive, 1119. The present condition of the institution is prosperous. The Dexter asylum for the poor of Providence, finished in 1828, is a brick edifice of three stories, 170 feet long and forty-five feet wide. The Friends' boarding school, established by, and belonging to the yearly meeting of New England, is also a spacious structure, of brick, with a basement of granite, under the care of a superintendent, five male and four female teachers. There are 117 male and 70 female pupils. It has a small library. The public schools were established in 1800, and now consist of five grammar schools, five primary schools, and one African school. They originated with the mechanics' and manufacturers' association. The Providence library contains about 1600 volumes; the mechanics' apprentices' library about 1000; and that of the athenæum (an institution just commenced), about 1500. Providence was early a place of much commercial enterprise. In the first half of the year 1791, the duties paid on imports and tonnage amounted to 59,766.14 dollars; in the year 1831, the whole amount collected was 227,000 dollars, notwithstanding the diminution of the rates of duties on many articles, which reduced the sum 36,000 dollars, at least. The imports in 1831 amounted to 457,717 dollars; the exports, domestic $199,193, foreign $130,441, total $329,634. The amount of shipping registered is 12,362 tons; enrolled, 4788 tons. There are four insurance companies, with an aggregate capital of $360,000; and fifteen banks, with an aggregate capital of $4,502,800, besides a branch of the U. States bank, with a capital of $800,000, and the sav ings bank, capital $100,000. The Blackstone canal, extending from Providence to the town of Worcester (Mass.), was finished in 1828; whole cost about $700,000. It is navigated by thirty boats, from twenty-five to thirty tons each. There are ten newspapers published in Providence, two of which are daily. Providence is most distinguished for its manufactures. There are in Providence four cotton factories, two moved by steam and two by water power, employing a gross capital of $327,489. They contain 11,194 spindles, and 244 looms. They give employment to 352 persons directly, besides 739 others, dependent, more or less, on them, with an aggregate annual amount of $45,801 wages. They consume annually 434,971 pounds of cotton; spin 382,875 pounds of yarn, and weave 1,458,000 yards of cloth, mostly of the finest and most valuable quality, to the estimated value of $247,860. There are also two extensive bleacheries, in which very large quantities of cotton cloth, from many of the factories in Rhode Island and other states, are bleached, calendered and beetled; and a third one is erecting. The two in operation employ a capital of $175,000, and 195 persons, whose annual wages amount to $49,000; and the annual quantity of cloth bleached and finished at these establishments is 3,300,000 pounds, or 13,200,000 yards. There are also four dye-houses, and a factory for making candle and lamp wick, and cotton webbing. There are four iron founderies and seven machine shops, employed principally in building cotton machinery, and estimated to constitute one third of the whole amount of this business carried on in the state. These employ a capital of $250,000, and 414 persons. They work up annually about 1390 tons of iron and steel, manufacturing machinery to the value of 309,000 dollars. There are, besides, one file factory, and one of steam engines, one of steam boilers, and three brass founderies, all on a considerable scale. There are seven principal establishments for working in tin, sheet-iron, copper, brass, &c., in two of which the manufacture of stoves, pipes, and grates for anthracite coal, is carried on very extensively; one comb factory, which annually consumes $4000 worth of stock, and manufactures combs to the value of $9500; twenty-seven jewellers' and goldsmiths' shops, employing a capital of $100,200, 282 persons, and manufacturing goods to the value of $228,253; also one factory for hat bodies of wool, very extensively operating on a most useful patented invention; one of sperm and one of linseed oil; one mill for cutting and grinding dye-stuffs. A large glass-house, for the manufacture and cutting of flint-glass, has been in operation about a year, employing a capital of $36,000, fifty-eight men and fourteen boys, whose wages amount to $21,000 per annum, and turning out manufactured goods to the value of $1400 per week, or about $70,000 per annum. Besides the above, there is an extensive manufacture of leather, boots and shoes, soap and candles, cabinet furniture, hats, &c., and pickers, and sundry articles used in other departments of the manufacturing business. The capitalists of Providence have, besides, an amount equal to $2,000,000 invested in cotton, woollen, and other factories, in other towns of Rhode Island and the adjoining states, agencies of which are established within the city. For the consumption of the town and its vicinity, including, as this does, many manufacturing villages, there were imported, in the year 1830, 45,166 bales of cotton, and, in the year 1831, 55,707; and of bread-stuffs, in 1830, 68,473 barrels of flour, 358,181 bushels of corn, and 16,967 of rye; in 1831, 71,369 barrels of flour, 216,662 bushels of corn, and 7772 of rye.—This town was founded by Roger Williams, who was born in Wales, and educated at Oxford. He removed to America in 1631, and, after preaching at Salem and Plymouth, was settled at the latter place, as pastor of the congregational church, in 1634. He there preached against the king's patent to the Plymouth colonists, on the ground that the king had no authority to grant and dispose of the lands of the natives, without their consent. For this course, together with his peculiar religious tenets, and particularly his open and fearless declaration of the principles, not of *toleration* merely, but of *entire and unrestricted religious freedom*, and his avowal that the civil magistrate had no right "to deal in matters of conscience and religion," he was banished, and ordered to depart the Plymouth jurisdiction within six weeks. This sentence was passed in the autumn of 1635; but he was afterwards informed that permission was granted him to remain until the ensuing spring. So great, however, was the fear of his influence, that an officer was sent to apprehend and carry him on board a vessel at Nantasket, in order that he might be conveyed to England. Before the arrival of the officer, Williams, having intimation of this design, had departed for Rehoboth. Being there informed by governor Winslow that he was still within the bounds of the Plymouth patent, he crossed the Seekonk river, in the spring of 1636, and commenced a new settlement in the wilderness, near the mouth of the small river Mooshasuck, giving it, in acknowledgment of the divine protection, the name of *Providence*. The first settlement of the town was thus made on the point of land between the Seekonk or Blackstone river on the east, and the arm of the Narraganset bay on the west. The latter was afterwards gradually contracted by the extension of the land in the present westerly part of the town, until the two parts were, at length, connected by Weybossett bridge, now nearly in the centre of the town. The sheet of water remaining north of this bridge was thus formed into a beautiful cove, which, at its northern extremity, receives the Mooshasuck river, and forms the basin of the Blackstone canal. In 1676, during the war which was made, at the instigation of king Philip, for the extermination of the New England colonists, an attack was made on Providence by the Indians, and about forty houses burned and destroyed. In 1801, it suffered severely from an extensive fire. In 1807, a violent storm and flood destroyed nearly all the bridges, and a great number of buildings, in the town and its vicinity. In the great storm of September, 1815, about 500 buildings were destroyed by the wind and the water of the bay. The loss of property on that occasion was then estimated at more than $1,000,000 ; but that eventually proved of much benefit to the place, by removing a great number of old and comparatively useless buildings, whereby an opportunity was afforded for new and commodious streets in those sections which are devoted to commercial business. In October, 1831, Providence was incorporated as a city, divided into six wards. Its municipal government is vested in a mayor, a board of six aldermen, and a common council of twenty-four members.

Providence, or **New Providence**; the second island, in point of size, among the Bahamas, being thirty miles in length and eight in breadth ; lat. 25° 2′ N. ; lon. 77° 20′ W. A part of it is very fertile ; but its principal business arises from the misfortunes of those ships which are compelled to seek it for a harbor. The port is called *Nassau*, and is situated on the north part of the island. Its harbor is rather shallow ; but it is the capital, and far the most commercial town of the Bahamas. The population of the island is supposed to be about 8000, the greater part of whom are slaves. (See *Bahamas*.)

Providence Plantations. (See *New England*, and *Providence*.)

Province (*provincia*), among the Romans ; a district of conquered country, governed by a proconsul or propretor (see *Proconsul*), and called therefore *provincia consularis*, or *prætoria*. But this name was only applied to lands lying beyond the boundaries of Italy. In the time of Augustus, they were divided into the *provinciæ senatoriæ*, or *populares* (the people's provinces), and the *provinciæ imperatoriæ* (the emperor's provinces). The latter comprised those which were most exposed to hostile inroads, and the administration of which was left entirely to the emperor, under the pretence of sparing the senate and people the trouble of managing them, but in reality to keep the army in his own hands. They were different according to circumstances. In modern times, the term has been applied to colonies, or to dependent countries, at a distance from the metropolis, or to the different divisions of the kingdom itself. Thus the Low Countries belonging to Austria and Spain were styled *provinces* (see *Netherlands*) ; and the same term is applied to some of the English colonies. The different governments into which France was divided, previous to the revolution, were also called *provinces*. The name has sometimes been retained by independent states. Thus the republic of Holland, after it had thrown off the Spanish yoke, was called the *United Provinces* ; and the Argentine republic has assumed the name of *United Provinces of the Plata*. In England, the jurisdictions of the two archbishops are styled *provinces*.—*Provincial* is a monastic officer who has the superintendence of the monasteries of his order within a certain province or district, and is himself subordinate to the general of his order.

Provost (from *præpositus*) ; in some of the Scotch cities, the title of the chief municipal officer. (See *Prévot*.) The heads of several of the colleges in the universities of Oxford and Cambridge are also styled *provosts*.

Provost marshal of an army is an officer appointed to arrest and secure deserters and other criminals, to hinder the soldiers from pillaging, to indict offenders, and to see sentence passed upon them and executed. He also regulates weights and measures.

Prudhon, Pierre Paul ; a French painter, born in 1760, at Cluny, where he was educated by the monks of the celebrated abbey of the place. The sight of the pictures here awakened his taste for painting, which being observed by the monks, the bishop of Macon had him instructed in drawing at Dijon. After having studied in Rome, whither he was sent by the Burgundian estates, Prudhon returned to France in 1789, and lived some time in obscurity in Paris, but finally gained reputation by his celebrated allegorical picture, Crime pursued by Divine Justice. He died in 1823. His principal productions are Psyche borne away by the Zephyrs, Zephyr sporting over the Water, an Assumption, and a Dying Christ. Some have censured his design, and the sameness of his heads; but his brilliant coloring, and the fine expression and grace of his pencil, are generally admired.

Prunes. (See *Plums*.)

Prussia; the smallest of the (so called) great powers of Europe; a country in several respects singular, being composed of very heterogeneous parts, several of them not connected by any common feeling or common interest, not even by geographical situation, but merely by artificial political system; and yet it holds an influential station among the European powers. Another very striking feature of this monarchy is the care which it bestows on science and education. The sciences are no where fostered with more care, and there are few countries in which common schools are more widely diffused. Notwithstanding the effect which this must have in enlightening the people, and notwithstanding the attention which has been paid, for several generations, to the administration of justice, there is an almost incomprehensible backwardness in every thing which belongs to a civic spirit, chiefly, it is probable, from three reasons: 1. that the greatness of Prussia proceeded from, and has been supported by, military power, the power of standing armies, and the whole system of government has been carried on with something of a military spirit by numerous officers in regular gradations, who execute the orders received from their superiors. 2. That many of the various parts composing the monarchy have no national interest, as Prussians, in each other; so that the noblest germs of civil virtue remain undeveloped in the breasts of the people, whose interests are diverse. We may add here, by the way, that Prussia, of late, has neglected the most important means of giving coherency to her population, namely, the assembling of representatives from all the various provinces in one legislative body. Nothing would have united the people more strongly than thus awakening a national feeling for a common institution. 3. That, since the time of Frederic the Great, Prussia has felt obliged to seek a strong ally in Russia to strengthen herself against Austria—an alliance which has much retarded her civil advancement. We shall now proceed to the *Statistics and Geography of Prussia.* The Prussian monarchy, which contained 3,000,000 of inhabitants, on 46,428 square miles, with an army of 76,000 men, when Frederic the Great ascended the throne, contained, in 1804, without reckoning Neufchatel, 9,977,497 inhabitants, upon 120,395 square miles (with 38,000,000 of Prussian dollars income, about 32,000,000 Spanish), and at the end of 1828, 12,726,823 inhabitants, upon 106,852 square miles, with 3,316,459 buildings, to which is to be added Neufchatel, with 51,560 inhabitants, upon 296 square miles; and, at the close of 1830, the number of the inhabitants was 12,939,877. The whole increase of the population in 14 years has been 2,247,082. In 1826, the population stood thus:—

Germans, ...	10,038,457
Of Sclavonic origin, ...	2,028,500
French Walloons, ...	87,600
Jews, ...	153,687

The numbers belonging to the chief religious denominations, in 1826, were,

Evangelical (comprising Lutherans and Calvinists), . .	7,495,815
Catholics, ...	4,689,808
Jews, ...	154,620
Mennonites, ...	16,271

The military consisted, in 1829, of 165,000 regular troops (of which 17,908 were guards, 19,132 cavalry, 15,718 artillery, and 104,712 infantry of the line), and of 359,248 *Landwehr* (q. v.), of which 179,624 were of the first class, and 179,624 of the second class: the whole military force, therefore, comprised 524,248 men. Revenue for 1829 about 36,190,000 Spanish dollars; national debt, in 1820, 135,370,000. The revenue, for 1829, was levied thus:—

Domains and royal forests,	$3,223,350
Sale of domains, ...	712,500
Mines, salt works, ...	712,500
Manufactures of porcelain, . .	9,975
Post department, ...	773,750
Lotteries, ...	487,350
Salt monopoly, ...	3,307,887

Balance from Neufchatel, . . .	18,525
Tax on real estate, ...	6,880,612
Tax called *class-tax*, ...	4,537,200
Tax on occupations, ...	1,236,900
On excise, duties and stamp,	13,347,262
Highway toll, ...	408,262
Extraordinary revenue, ...	426,070

The army cost, in 1829, $15,692,562. The number of students at the universities stood thus in the following years:—

	Founded.	Year.	Students.
Berlin, ...	1810	1829	1706
Halle, ...	1694	1828	1185
Breslau, ...	1702	1828	1021
Bonn, ...	1818	1829	1002
Königsberg, . .	1544	1829	523
Greifswalde, . .	1456	1829	154
Münster, ...	1631	1827	284

(For the schools of Prussia, see the article *Schools*.) The chief cities are

	Inhabitants.
Berlin (the capital), ...	236,830
Breslau, ...	90,090
Cologne, ...	64,499
Königsberg, ...	67,941
Dantzic, ...	61,902
Magdeburg, ...	44,049

The peace of 1815 did not give compactness to the irregular territory of Prussia. It consists (Neufchatel not included) of an eastern and a western part: the former, which is much the larger, is bounded by Russia, Austria, the kingdom of Saxony, the small states in Thuringia, the electorate of Hesse, Hanover, Brunswick, Mecklenburg, and on the north by the Baltic. The latter is separated from the former by the electorate of Hesse, Hanover and Brunswick, and is bounded by the Netherlands, France, Bavaria, Lippe-Detmold, Nassau, Waldeck, and other small territories. The country is mostly level, with small elevations. The island of Rugen, with its promontory Stubbenkammer, is the highest point in the lands on the Baltic. The principal chains of mountains are the Sudetes, with the Riesengebirge (the Schneekoppe, 4950 feet high); the Hartz (q. v.), with the Brocken; the Thuringian forest; the Westerwald, with the Siebengebirge; the Hundsrück, with the Hochwald; and the Eifel, a continuation of the Ardennes. The rivers are mentioned below. The climate is, on the whole, variable, and severe rather than mild and warm; yet, in the valleys of the Nahe, Moselle, Saar and the Rhine, it is very fine. Since 1815, the monarchy has been divided into ten provinces and seven military districts. The provinces are subdivided into two or three governments, of which the smallest in point of population contains 148,948 inhabitants, and the largest in this respect, that of Breslau, contains 942,307 inhabitants. A government is under the control of a president and a number of counsellors and assessors, who have the charge of every thing except the administration of justice. Each province has a high-president. The ten provinces are as follows:—

	Inhabitants in 1828.
Brandenburg, ...	1,539,602
Pomerania, ...	877,555
Silesia, ...	2,396,551
Saxony, ...	1,409,388
Westphalia, ...	1,228,544
Cleves-Berg, ...	1,075,025
Lower Rhine, ...	1,127,297
East Prussia, ...	1,216,154
West Prussia, ...	792,207
Posen, ...	1,064,506

Neufchatel has 51,580. Though the geographical character and financial resources of Prussia were much improved by the peace of Paris, the first still gives rise to many inconveniences. Prussia has an unguarded frontier from Seidenberg, in Upper Lusatia, to Wittichenau; an open frontier towards Russia (as a Russian army may, at any time, come within three days' march of Breslau, and to fortify the Prosna would cost millions), and her Rhenish provinces compel her to keep up always a strong military force in the direction of France—all which shows, if we may use the phrase, the artificial existence of Prussia, her unnatural position. Prussia can only partially overcome these disadvantages by immense expense; and nothing but the establishment of a general government for the whole of Germany can afford an adequate barrier against the threatening power of Russia. Prussia, which has but a third part of the population of France, has yet 712 miles more of frontier. At one extremity she touches the gates of the French fortress Thionville on the Moselle, while the other is watered by the Memel and the Niemen, and we seek in vain for a body to unite the two arms, which are connected only by the double military road running through Hanover. There are, properly speaking, three Prussias, one in Poland, one in Germany, one between the Meuse and the Rhine. The kingdom has three vulnerable parts, towards Russia, Austria, and France; hence its situation is dependent. The commerce is various, yet would be much greater if those countries which now form Prussia formed part of one great state, comprising all Germany, because her trade with the interior of Germany is now obstructed. The Prussian territory extends 522 miles on the Baltic, and has several bays and ports. Its inland trade is promoted by the rivers Oder, Vistula, Elbe and Saale (the two latter of which are connected by seven canals with the two former), the Rhine, and also the Memel, Pregel, Warta, Netze, Havel, Spree, Weser, Ems, Ruhr, Lippe and Moselle, which either flow through Prussia, or belong entirely to it. There are rich lands along the banks of most of these rivers. The mineral treasures of the country, which are considerable, with the exception of the nobler metals, are much wrought. Amber is found almost exclusively on the coast of Hinder Pomerania and East Prussia. Cattle of all kinds are raised: horses are bred chiefly in East Prussia. Agriculture and the raising of sheep (Prussia has more than 15,000,000 of sheep) have attained a high degree of perfection. Manufactures are carried on in the mountainous part of Silesia, in Ravensberg, the Mark, Berg, and the other Rhenish provinces, chiefly of articles of domestic production; for example, manufactures of linen, amounting, in Silesia, annually to 11,000,000 of Prussian dollars (above 7,400,000 Spanish), of wool (in Silesia, Brandenburg, Saxony, the Lower Rhine, Aix-la-Chapelle, Burtscheid, Stolberg, &c.), and manufactures of various kinds of hardware. Iron and steel wares are largely made at Berlin, Solingen, Remscheid, Iserlohn. The value of all these manufactures was estimated, in 1804, at 51,000,000, and, including all sorts of articles for consumptions, at more than 85,000,000 of Prussian dollars,* and this year may be taken as a standard. Dantzic, Stettin, Kőnigsberg, Memel, Elbing, Pillau, Colberg, Stralsund and Swinemünde (q. v.) are seaports, some of them not unimportant. Though Prussia employed many thousand sailors before the introduction of the continental system, yet it has no navy to protect its commerce; and some forced attempts of the government to carry the Prussian flag to distant parts of the world, have by no means tended to the benefit of commerce. By a law of Sept. 21, 1821, a small coin (silver grosh), of which thirty make one Prussian dollar, was introduced. Government gain by it fourteen per cent.—Most of the inhabitants of Prussia are Lutherans: the reigning family are Calvinistic. In 1824, the king introduced a new liturgy, which, in 1825, 5343 of the 7782 evangelical churches in the Prussian monarchy had accepted. According to the concordate with the pope, in the bull *De Salute Animarum*, of July 16, 1821. the bishops of Münster, Treves and Paderborn are under the archbishop of Cologne, and the bishop of Culm is under the archbishop of Gnesen and Posen. The bishoprics of Breslau and Ermeland are under no archbishop. The eight chapters elect their bishops; the pope confirms the election, and the chapters inquire, before the election, whether the persons proposed for their votes would be agreeable to the king. The members of the chapters are elected by the pope in the months one, three, five, seven, nine, eleven; in the other months by the bishop. In the first case, respect is paid to the wishes of the king; in the latter, the election is subject to the royal confirmation. The following orders of knighthood exist in Prussia: the order of the Black Eagle, founded in 1701, at the coronation of Frederic I, consisting of but one class; the order of the Red Eagle, originally an order of the house of Anspach and Baireuth, and confirmed in 1791, by Frederic William II, and, in 1810, divided into three classes; the Louisa order, founded in 1814, for females; the order of Merit, founded in 1740; that of the Iron Cross, with two classes, for those who fought in the campaigns of 1813—15; the order of St. John, besides various other honorary designations, medals, crosses, &c. In 1823, the king established provincial estates both where they had previously existed, and where they had not. This was to pass for a fulfilment of his promise made in 1815, to give a constitution to his people, but was, in fact, an evasion and a mockery. The estates consisting of nobility, citizens and peasants, have the right to give their opinion when they are consulted, and in questions relating to taxation, they are always to be consulted; but in no case is their opinion binding on the government. Though Prussia is an absolute monarchy, all persons are equally subject to the laws, and justice is impartially administered (except in the case of accusations for political offences); all are equally bound to do military duty, and the way to office is nominally open to all. Feudal services were abolished or rendered redeemable by the edict of Oct. 9, 1807, which must be considered as a consequence of the principles introduced by the French revolution. The internal organization of the state rests on the edict of Oct. 9, 1707, and the administration was settled by the law of April 30, 1815. A general presides over each military division, and a high president (*Oberpräsident*) over each province. The conduct of public affairs belongs to the governments; the administration of justice to the high courts of the country (*Oberlandesgerichte*). Each "government" has a president and two chief divisions, the first of which attends to the police, the estates, the military, and the general affairs of the government, and is under the minister of the interior. The second division, under the minister of the police, has the charge of all financial affairs. Each province is divided into circles, superintended by a counsellor (*Landrath*), the organ of both divisions. The high presidents are permanent deputies of the ministers. To them are intrusted all those matters of political regulation, whose effect cannot be restricted to a single government; in particular, they are the presidents of the consistorial and medical authorities, and, at the same time, presidents of the government in the capital of the province. At the head of the state stands the monarch, who issues through his "privy cabinet" cabinet orders, signed by himself. March 30, 1817, a council of state was established: it is the highest deliberative authority, but has no part in executive business. It examines all plans, proposals, grievances, &c. The king presides, or the chancellor of state, or a member temporarily substituted. In 1819, this council consisted of sixty-six persons, including the princes. Under the "ministry of state" (consisting of the prince-royal, nine ministers of state and six reporting counsellors) stand immediately the privy state and cabinet archives, the high committee of examination, and the board of statistics. The ministry of state consists of, 1. the ministry of the royal household; 2. of foreign affairs; 3. of justice; 4. of finances; 5. of manufactures, commerce and public works; 6. of the army; 7. the interior and the police; 8. of ecclesiastical affairs, education and health; 9. of accounts (*Staatsbuchhalterei*). Independent of these is the general post-office. The general directory of foreign commerce has formed a separate department since 1820. The same is the case with the chief bank at Berlin. (For the Prussian law, and the administration of justice, see the end of this article.) The Prussian government has fulfilled its pecuniary obligations with scrupulous exactness: thus it behaved honorably in its new provinces to the public creditors, who were so long ill-treated under the confederation, and acknowledged the whole debt in Westphalia, which had been reduced to a third by the king of Westphalia. The reigning house in Prussia is the house of Hohenzollern. The present king is Frederic William III. (q. v.) His son, the prince-royal, Frederic William, was born Oct. 15, 1795. Of the previous kings, Frederic I died 1713, Frederic William I in 1740, Frederic II (the Great) in 1786, Frederic William II in 1797.—*History of Prussia*. The Teutonic knights received, in 1226, a strip of land on the Vistula from Conrad of Masovia (see *Poland*), in order that they might protect Poland from the heathen inhabitants of Prussia. From 1230 to 1283, they carried on a war of extermination with eleven Prussian tribes. These at last became Christians, and adopted the German customs. The power of the Teutonic knights increased rapidly, and, in the fifteenth century, their territory extended from the Oder, along the Baltic, to the bay of Finland, and contained cities like Dantzic, Elbing, Thorn, Culm, &c. About 1404, they ruled over 2,500,000 of people, and had an annual income of 800,000 marks. But the knights became tyrants, and the nobility and cities had no means of escaping their oppression but by submitting to Poland. A terrible war ensued, from 1454 to 1466, and the country was filled with bloodshed and devastation. In 1511, the knights elected Albert of Brandenburg, son of the margrave of Anspach, to the office of grand master, with a view of strengthening themselves. In 1525, the order was abolished entirely in Prussia, and its territory was converted into an hereditary duchy, under prince Albert and his male descendants or brothers, as a fief of Poland. The republic of Poland acknowledged the sovereignty of the elector of Brandenburg in the duchy of Prussia by the treaty of Welau, Sept. 19, 1657. Towards other powers, and especially Sweden, the great elector Frederic William (q. v.) also maintained a respectable attitude. His son Frederic III placed the royal crown upon his head, Jan. 18, 1701, as Frederic I, thereby elevating Prussia Proper to a kingdom. Vanity probably led him to take this step, but, under him, the monarchy increased in territory, and a desire for further increase—a necessary consequence of the scattered condition of its component parts—and the assumption of a station which required augmented power to support it—became an early, and, it may be said, a ruling trait of Prussian policy, and the desire is still strong, for the original motive still remains. Frederic William I (q. v.) received Stettin in 1720, by the peace of Stockholm, and also Prussian Gueldres. He was a tyrannical soldier, but sagacious, a friend of justice when it did not interfere with his caprices or plans. His desire to keep on foot a standing army of 60,000 men, led him to the enlisting of foreigners. He was frugal, and under him began the system so much developed by Frederic II, of making the internal government as much as possible a machine. His love of justice not unfrequently led him to infringe the independence of the judiciary. With many resources which waited only for developement, Prussia came to Frederic the Great, who made it one of the first powers of Europe. Claims upon parts of Silesia were used as a pretext for the invasion of that province. After several wars, he remained in possession of the chief part of it. East Friesland was united with Prussia in 1743. From the year 1763, Frederic's chief care was directed to the internal government, almost all the branches of which he improved; but the great number of troops which he kept on foot induced him to make the increase of revenue the chief object of his government, and the whole system of internal administration was regulated with a view to make it a productive machine. Square miles and population were then the measure of power and happiness in the policy of the European cabinets; the first partition of Poland, in 1772, was the consequence; and, from that time, Prussia sacrificed Poland to Russia, to secure its aid as an ally against Austria. The monarchy was almost doubled under Frederic the Great. He left to his nephew, Frederic William II, a territory of 71,670 square miles, with 5,800,000 inhabitants, and an army of 220,000 men (which, however, consumed almost four fifths of the revenue of the state), and a treasure of 50 million Prussian dollars (about 34 million Spanish). Frederic the Great had no true love for his nation; his ruling passions were the love of fame and of power. He regarded the Prussian nation as a foreign general regards the army under his command. More than any other prince he undermined the German empire, which, it must be owned, had become worse than worthless. He separated entirely the army and the citizens—a system whose natural termination was the punishment of an insolent nobility on the field of Jena. Under his government industry was encouraged; the press enjoyed considerable liberty; Frederic was, in general, a lover of justice. With him died the principle which had given motion to the whole system, and Mirabeau, in his *Histoire secrète*, calls Prussia *pourriture avant maturité*. His successor, Frederic William II, was a profligate and weak man; the country was badly governed; the finances exhausted, and her politics became wavering, because Frederic the Great had elevated her to such a rank among the European states, that she was obliged to take a prominent part in the most important affairs of the continent; but after she had lost the aid of his genius, she had not sufficient power to act independently. This wavering character continued for a long series of years. With Frederic the Great, also, or, at least, under him, began a singular contradiction in Prussian politics. While her government promotes with great liberality the diffusion of knowledge, and manifests a real enthusiasm for science, and several of her most eminent public men are among the friends of free institutions, yet history finds her siding with Russia, and, of late, also, with Austria, all three opposing with a vain obstinacy the irresistible progress of liberty. At Reichenbach (q. v.), in 1790, Prussia appeared as mediator in the peace with the Porte, and in August, 1791, became connected again with the court of Vienna by the convention of Pilnitz. (q. v.) The profligate extravagance of the court of Frederic William II required large supplies of money; and Prussia and Russia seized upon the remainder of Poland, under the pretext of putting down Jacobinism, although Frederic William had assented to the new Polish constitution of May 3, 1791. The cabinet, which surrounded the imbecile king, was without principle; it took possession of the territory of Nuremberg; it shared, in 1793 and 1795, in the partitions of Poland, and made a secret treaty (August 5, 1796) with France. After many inconsistent steps caused by her artificial situation, Prussia resolved upon the maintenance of a strict neutrality, which, in the state of Europe at that time, was impossible. In 1803, France occupied Hanover. In 1805, when a third coalition was forming against France, Prussia wavered more than ever. The emperor of Russia, Alexander, appeared at Berlin, and brought about the convention of Potsdam, Nov. 3, 1805; but, after the battle of Austerlitz, Prussia sought for peace, and concluded with France the treaties of Dec. 15, 1805, at Vienna, and of Feb. 15, 1806, at Paris. April 1, 1806, she was obliged to occupy Hanover, and was severely reproached by Fox. After Napoleon had concluded the confederacy of the Rhine, Prussia thought herself called upon to form a counterpoise against France; but she could not effect a confederacy of the states of Northern Germany. A war ensued, and a single battle—that of Jena, Oct. 14, 1806—disclosed to the world the rottenness of the system of Frederic the Great (to rest the whole power of the state on the army, and to separate the army as much as possible from the citizens, by taking for soldiers foreigners, and for officers noblemen only, whose arrogance has never been surpassed, and had no solid basis, not even that of large property). The peace of Tilsit, July 9, 1807, reduced Prussia to half its former dimensions, and this half had to support 150,000 French soldiers until December, 1808, and to pay 120 millions of francs; French garrisons remained in the fortresses of Stettin, Küstrin and Glogau. The minister Von Stein (at the head of affairs since Oct. 5, 1807,) strove to regenerate Prussia, and, though he was a most uncompromising enemy of France, established by the edict of Oct. 9, 1807, new relations between the landlords and the cultivators, and introduced several results of the French revolution. The peasants were to be in future free, and might become owners of the soil; and, Nov. 19, 1808, a municipal constitution, called the *Städteordnung*, was established, by which the minister Stein seems to have intended to lay the foundation of a civil spirit, and to adapt the state of Prussia to the spirit of the age.[*] In 1808, Stein was obliged to leave Germany, in consequence of the persecutions of the French. June 6, 1810, baron Hardenberg was placed at the head of the government as state-chancellor. His administration is a most important one for Prussia. (See *Hardenberg*.) The continuance of French oppression, instead of weakening Prussia, strengthened her to a degree which would have been thought impossible. Her energy broke forth with a wonderful effect in 1813, when the king called on "his people" to shake off the French yoke. The nation was then in a state of excitement, which the government gladly made use of, but did not understand, or, if it did understand, labored to check as soon as the occasion for turning it to profit had passed by. We have given, in the first division, *Statistics*, &c. of Prussia, the increase which this monarchy received from the Vienna congress. Its political station is much the same as it was before 1806, though Prussia has become more influential than it was during the reign of Frederic William II, and is closely connected with Austria and Russia, and instead of rallying round her the constitutional portion of Germany, and making herself the champion of order and civil liberty in that country, she shuts her eyes to the noble opportunity, and joins to the barbarous might of Russia and the withering despotism of Austria the light of science and civilization, and thus, in case of a general war, will compel the constitutional states of Germany again to join France.

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* A Prussian dollar is equal to about sixty-eight cents of our money.

Administration of Justice in Prussia. At the head of it is the minister of justice, whose office extends to the organization of the whole department, all the appointments in the same, &c., and to decisions in cases unprovided for, and the remedying of what appears defective or contradictory by the authority of the king. Under him, in the ancient Prussian dominions, are the high courts of the country (*Oberlandesgerichte*); under these the lower courts, particularly the *inquisitoriats*, which have charge of criminal cases; the country and town courts; royal "justice-offices," courts of the mediatized princes, counts and barons, patrimonial courts; commissioners of justice (advocates) and notaries. There are also ecclesiastical and commercial courts. Since the new organization of justice in Prussia, it has always been the plan to appoint, even for courts of the first instance, several judges with collegiate power, for all cases where the question is one of real legal investigation; whereas, in former times, in Germany, there was but one judge in all the courts of the first instance. The same principle lies at the foundation of the new French organization. The judicial system in Prussia is as follows:—*A.* In the German countries between the Rhine and the Weser, the Elbe and Oder, including East Prussia, there is a considerable variety in the courts of the first instance, particularly in Silesia and Westphalia, on account of the many lordships and principalities which have independent courts of the first instance: some of them even possess courts of the second instance. In the Catholic parts of the country there are, also, the ecclesiastical courts of the archbishops and bishops. The courts of the second instance comprise sixteen high courts of the country, of which the one at Berlin is called *court of the chamber* (*Kammergericht*). These are permanent courts, and all the time in session. Every high court of the country is divided into two senates (three only excepted), of which the second forms generally the court of appeal, and at the same time attends to affairs of guardianship, &c. The division into senates exists also for criminal cases. These high courts of the country consist of 330 presidents, counsellors and assessors (all judges). Above them stands the privy supreme tribunal at Berlin, as a court of revision for important cases. Civil cases, according to the ancient German custom, pass successively through three courts, criminal cases through two; but all decisions in important criminal cases are sent to the minister of justice, and generally are laid by him before the *Kammergericht* for its opinion. For the conduct of investigations there is a division, called *Inquisitoriat*, in the high courts of the country. This organization exists in East and West Prussia, Brandenburg, Pomerania, Silesia, Saxony, Westphalia, and Juliers-Cleves-Berg. *B.* The province of Posen had, during the existence of the duchy of Warsaw, a judicial organization entirely French, which, with certain modifications, has been retained by the ordinance of Feb. 9, 1817. There are in that province thirty-one courts of the peace, for much the same objects as the French courts of this sort, namely, to effect compromises, to decide in actions for the recovery of small debts, contracts of hire, insults, &c. As courts of the second instance for cases decided by the justices of the peace, and of the first instance for other cases, there are seven "country courts" (*Landgerichte*), corresponding to the French *tribunaux de première instance*. In some cases, the oral pleading has been retained in civil cases, but with an extension of the power of the judge, and a curtailing of the irregular writing, which the French process permits to the advocates. (See *Process.*) For criminal cases there are four inquisitoriats, entirely in the Prussian form. A high court of appeal at Posen, with two presidents and eight counsellors (judges), forms the court of highest instance in all cases. The first appeal is made from one country court to another; so that these courts exercise mutually an appellate jurisdiction over each other. The high court of appeal is not merely a court of cassation (q. v.), but goes into a consideration of the whole case, and decides it upon the merits. The courts of the peace consist of a judge and an assessor (assistant). The country courts comprise sixty-two presidents, directors, counsellors and assessors. *C.* In the province of the Lower Rhine, the French administration has been retained entirely, as well in respect to the organization of the courts as to the nature of the process. (Only the Eastern Rhenish part of the district of the country court of Coblentz has the Prussian organization.) In this province, there are 123 courts of the peace. Above them stand six country courts, with ninety-one presidents, counsellors and assessors. The court of second instance (in regard to courts of the peace the third) is the Rhenish court of appeal, with two presidents, twenty-six counsellors, and two assessors. There are in these courts, collectively, thirty-three advocates of the crown. At Aix-la-Chapelle, Coblentz, Cologne, Crefeld, Elberfeld and Treves are commercial courts. Appeals of cassation (q. v.) go to the court of cassation at Berlin. *D.* The principality of Neufchatel and Valingin has its own ancient judicial system. The lower judicial authorities are the mayors and castellans; the higher are two sovereign courts, in which the governor presides, and to which each estate (nobility, officers and communities) sends four members. The supreme tribunal at Berlin is the highest court of justice for that part of the Prussian monarchy, in which the Prussian judicial system prevails. It decides only as the highest court of appeal, the court of third instance, in causes in which the amount in dispute is at least 2000 German dollars, with the exception of a few kinds of cases which belong to it, without regard to the amount, and of some which are excepted from its jurisdiction, without regard to the amount. It acts only on the reports carried up to it from the lower courts, and, whenever a disputed fact remains to be settled, the cause is sent back to the inferior court. The numerous other courts, which possess final jurisdiction, have prevented this tribunal from contributing so much to give completeness and uniformity to the jurisprudence of the country, as other supreme tribunals in other countries; for example, the parliament of Paris, the court of cassation, the court of the imperial chamber, the Roman rota, &c. The regulation of the judicial system has hitherto fallen principally to the minister of justice. The supreme tribunal, in the year 1824, consisted of a president (bearing the rank of minister) and twenty counsellors, who were chosen from the most distinguished members of the supreme tribunals of all the provinces. In addition to these, there was established, in 1819, for the administration of justice in the Rhenish provinces of Prussia, a court of revision and cassation at Berlin. For the grand duchy of Posen there is a supreme court of appeal, consisting of a president and eight counsellors at Posen. Swedish Pomerania also has its old system of justice, a court of five members, and a supreme court of appeal, composed of a president and three counsellors, both established at Greifswald.

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[*] The *Städteordnung* gives the cities the control of their pecuniary affairs, and, in some measure, of their police. It was revised in 1831, and extended to cities acquired since its introduction. It does not, however, confer much real liberty.

Prussian Code (*Allgemeines Landrecht*, that is, universal law of the country, called also, sometimes, by foreigners, *Codex Fridericianus*). All the kings of Prussia and Brandenburg, since the elector Frederic William of Brandenburg, have zealously endeavored to improve the system of law and legislation; but none of them have understood so thoroughly the real wants of the people, and none have had such success as king Frederic II, who was, in a great many respects, a benefactor to his country. Immediately after the conclusion of his first war, he gave to the courts a more simple and efficient constitution. The minister of justice (high-chancellor), Samuel V. Cocceji, a celebrated lawyer, began a *Corpus Juris Fridericianum*, in which the Roman law was brought into a natural order, general principles laid down and conclusions deduced, all subtleties and fictions, and all rules not applicable to the state of Germany, excluded, and all doubtful laws settled (1st part 1749, 2d part 1751). But this essay embraced only a small part of the system of law; and, although it was introduced in some provinces, still the proposed end was not yet attained. After Cocceji's death (1755), his constitution of the courts fell into disuse, and the design of making a new code of laws was for the time abandoned. But, in 1780, under the superintendence of the minister Von Carmer, the formation of a code was undertaken, and prosecuted with unceasing activity. It was not intended to make an entirely new code of laws, but to supply the defects of the existing system. The Roman law was, therefore, taken as the foundation of the work. To each passage was prefixed the place which it should occupy in the code, or the ground on which it was rejected, and whatever the new institutions made necessary was added according to the prevailing law. This code was published from 1784 to 1788, in six parts. The opinions of those who understood the subject were requested, and prizes offered for the best commentaries on it; and the whole was completed in June, 1791, under the title "General Prussian Code." Some slight faults which were pointed out having been corrected, it was promulgated June 1, 1794, under the title *Allgemeines Landrecht*. The work has, from the first, held a high rank, and only one distinguished voice has been raised against it, that of John George Schlosser, in his Five Letters on Legislation, and particularly on the Plan of the Prussian Code (Frankfort, 1789—90, 2 parts), which, on the whole, take the same ground as Von Savigny has lately done (*Ueber den Beruf unserer Zeit zur Gesetzgebung*, Berlin, 1815),* opposing all modern codes. The reforms which have been effected since 1808 have greatly added to its value, and the efforts for its improvement are still continued. Among the commentaries should be distinguished F. H. von Strombeck's Supplement to the General Code for the Prussian States (Leipsic, 1824, 2 vols.).

Prussia Proper includes the two provinces of East and West Prussia. East Prussia is mainly made up of the former duchy of Prussia, and West Prussia is a part of Poland, which was taken in the partitions. Königsberg is the capital of East Prussia. Dantzic and Marienwerder are the most important places of West Prussia.

PRUSSIAN BLUE. (See *Blue, Prussian*, and *Prussic Acid*.)

PRUSSIC ACID, or HYDROCYANIC ACID, is procured by the following process: To a quantity of powdered prussian blue, diffused in boiling water, let red oxide of mercury be added in successive portions, till the blue color is destroyed. Filter the liquid, and concentrate till a pellicle appears upon its surface. On cooling, crystals of prussiate (or cyanide) of mercury will make their appearance. These, after drying, are put into a tubulated glass retort, to the beak of which is adapted a horizontal tube, about two feet long, and fully half an inch wide at its middle part. The first third part next the retort is filled with small pieces of white marble, the rest with fused muriate of lime. To the end of this tube is adapted a small receiver, which is immersed in a freezing mixture. Pour on the crystals in the retort, muriatic acid in rather less quantity than is sufficient to saturate the oxide of mercury which formed them. Apply a very gentle heat to the retort. Prussic acid will be evolved in vapor, and will condense in the tube. Whatever muriatic acid may pass over with it will be detained by the marble, while the water will be absorbed by the muriate of lime. By means of a moderate heat applied to the tube, the prussic acid may be made to pass successively along; and, after having been left some time in contact with the muriate of lime, may be driven over into the receiver. As the carbonic acid, evolved from marble by the muriatic, is apt to carry off some of the prussic acid, care should be taken so as to prevent the distillation of this mineral acid. Prussic acid, thus obtained, has the following properties: it is a colorless liquid, possessing a strong odor, somewhat resembling that of peach blossoms; and the exhalation, if incautiously inhaled, may produce sickness or fainting. Its taste is cooling at first, then hot, asthenic in a high degree, and a true poison. Its specific gravity, at 44½°, is 0.7058; at 64°, 0.6969. It boils at 81½°, and congeals at about 3°, becoming crystallized with the fibrous form of nitrate of ammonia. The cold which it produces, when reduced into vapor, even at the temperature of 68°, is sufficient to congeal it. This phenomenon is easily produced by putting a small drop at the end of a slip of paper, or a glass tube. Though repeatedly rectified on pounded marble, it retains the property of feebly reddening paper tinged blue with litmus. The red color disappears as the acid evaporates. The vapor of prussic acid is 0.9476. It was analyzed by Gay-Lussac by passing it through an ignited porcelain tube, containing coils of fine iron wire. No trace of oxygen could be found in it. The result was as follows:—

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* This work of Mr. von Savigny, whose objections against the aptitude of our time, not to make, but to compile codes, we by no means share, nor even consider very profound, is, nevertheless, highly interesting, as might have been expected from the reputation of the author. We recommend its perusal with reference to the history of the code here in question. It sets in a striking light the extreme care with which the Prussian code was drawn up, in which respect it is much distinguished from the French and Austrian codes. Savigny's work has been translated under the title On the Aptitude of the present Age for Legislation and Jurisprudence, by a Barrister of Lincoln's Inn (London).

Carbon,	44.39
Nitrogen,	51.71
Hydrogen,	3.90
	100.

This acid, when compared with other animal products, is distinguished by the great quantity of nitrogen it contains, by its small quantity of hydrogen, and the total absence of oxygen. When this strong acid is kept in well-closed vessels, even though all access of the air is prevented, it sometimes undergoes decomposition in less than one hour. It begins by assuming a reddish-brown color, which becomes deeper and deeper, until at length it deposits a carbonaceous matter, which gives a deep color to both acid and water, and emits an odor like that of ammonia. When potassium is heated in prussic acid vapor, mixed with hydrogen or nitrogen, there is absorption without inflammation, and the metal is converted into a gray, spongy substance, which melts, and assumes a yellow color. Supposing the quantity of potassium employed capable of disengaging from water a volume of hydrogen equal to 50 parts, we find, after the action of the potassium, that the gaseous mixture has experienced a diminution of volume amounting to 50 parts. On treating this mixture with potash, and analyzing the residue by oxygen, we find that 50 parts of hydrogen have been produced, and, consequently, that the potassium has absorbed 100 parts of prussic acid vapor; for there is a diminution of 50 parts, which would obviously have been twice as great, had not 50 parts of hydrogen been disengaged. The yellow matter is prussiate of potash, properly a cyanide of potassium, in analogy with the chloride and iodide of potassium, formed when the vapor of muriatic and hydriodic acid is made to act upon potassium. The base of prussic acid thus divested of its hydrogen, to which it owed its acidifying quality, is called *cyanogen* by Gay-Lussac, in allusion to its being the basis of the blue color of prussian blue. It is obtained by heating the cyanide of mercury in a small glass retort. It soon blackens, and melts like animal matter, at the same time disengaging the cyanogen in abundance. This substance, which is the true radical of the acid under consideration, is possessed of the following properties: It is a permanently elastic fluid, of a strong and penetrating odor, and a density, when compared with air, of 1.8. It is inflammable, and burns with an intensely beautiful bluish flame, bordering on purple. It consists of nitrogen 29.654, and carbon 25.418, and is, therefore, a bicarburet of cyanogen. Though a compound body, it has a remarkable tendency to combine with elementary bodies. Thus it is capable of uniting with the simple non-metallic bodies, and evinces a strong attraction for the metals. It enters into direct combination with a few alkaline bases only, and these compounds are by no means permanent; hence it has no claim to be considered as an acid. To return to the properties of prussic acid, before we describe the other compounds of cyanogen. Barytes, heated in prussic acid, yields its barium to the cyanogen of the acid to form a cyanuret of barium, while the hydrogen of the acid and the oxygen of the earth unite to form water. Potash and soda behave in a similar manner, as respects their bases. Prussic acid is the most violent of all poisons. When a rod dipped into it is brought in contact with the tongue of an animal, death ensues before the rod can be withdrawn. Doctor Magendie has, however, introduced its employment into medicine. He found it beneficial against phthisis and chronic catarrhs. His formula is the following: Mix one part of the pure prussic acid with 8½ of water by weight. To this mixture he gives the name of *medicinal* prussic acid. Of this he takes 1 *gros*, or 59 grs. troy, distilled water 1 lb., or 7560 grs., pure sugar 1½ oz., or 708¾ grs., and, mixing the ingredients well together, he administers a table-spoonful every morning and evening. One ten thousandth of prussic acid may be detected in water, by the addition of a few drops of solution of sulphate of iron. This test, though delicate, is surpassed by another, in which copper is used, and which will detect one twenty thousandth of prussic acid in water. To employ it, we must render the liquid containing the prussic acid slightly alkaline with potash, add a few drops of sulphate of copper, and, afterwards, sufficient muriatic acid to redissolve the excess of oxide of copper. The liquid will appear more or less milky, according to the quantity of prussic acid present. Prussic acid is formed in a great many chemical operations; as, for instance, by transmitting ammoniacal gas over ignited charcoal contained in a tube; as also by heating in a glass tube, closed at one end, a mixture of oxalate of ammonia and oxalate of manganese. Prussic acid exists in the vegetable kingdom. The peculiar smell of bitter almonds, peach flowers, and the leaves of the *lauro-cerasus*, and of other vegetables, is owing to this substance. Prussic acid is often obtained from the peach and apricot kernels. The bark of the *prunus padus* contains much of it, and water distilled from it is capable of killing animals. Cyanogen unites with oxygen, and gives rise to a compound called *cyanic acid*. It consists of cyanogen 26 parts, and oxygen 16. It crystallizes in oblique rhomboidal prisms, which are colorless and transparent, insoluble in cold water, but are dissolved in hot water, as well as in the strong acids. Its most remarkable property is, that it allows of being boiled with the strong acids without undergoing decomposition or change. With the metallic oxides it forms salts that do not detonate. The cyanous acid contains just half as much oxygen as the cyanic, and is characterized by the facility with which it is resolved by water into carbonic acid and ammonia, and by the property of detonation, when in union with the oxides of mercury and silver. It is, in fact, the same substance as the fulminic acid, which is essential in the fulminating compounds of these metals. (See *Fulmination*, and *Fulminating Silver*, and *Mercury*, under these metals respectively.) We have also two compounds of the radical of prussic acid with chlorine, called the *chloride of cyanogen*, and the *bichloride of cyanogen*. The former of these is solid at 0 of Fahr. Between 5° and 10° 5′, it is liquid, and also at 68°, under a pressure of four atmospheres; but, at the common pressure and temperature, it is a colorless gas. In the liquid state, it is as limpid and colorless as water. It has a very offensive odor, irritates the eyes, and is highly injurious to animal life. It consists of 36 parts chlorine and 26 of cyanogen. The bichloride of cyanogen contains twice as much chlorine as the preceding compound. It is solid at common temperatures; at 284° it fuses, and boils at 374°. Its vapor is acrid, and excites a flow of tears, and is injurious to life. Its odor is similar to that of chlorine. When boiled in water, it is converted into muriatic and cyanic acid. There is a compound of iodine and cyanogen of somewhat similar properties. It has a caustic taste and a penetrating odor. It is very volatile, and sustains a temperature above 212°, without decomposition. *Bromide of cyanogen* has also been formed, and resembles the last mentioned compound. Cyanogen forms an acid compound by a union with hydrogen and iron. It is neither volatile nor poisonous in small quantities, and is destitute of odor. It is gradually decomposed by exposure to the light, forming prussic acid and prussian blue. It decomposes some salts of the more powerful acids: peroxide of iron, for example, unites with it in preference to sulphuric acid, unless the latter is concentrated. As this acid contains no oxygen, but simply consists of carbon, hydrogen, nitrogen and metallic iron, the name of *ferrureted chyazic acid* (*chyazic*, from the initials of *carbon, hydrogen* and *azote*) has been proposed; but the term *ferrocyanic acid* is more generally employed. Of the salts formed by this acid, the most important in chemistry is the *ferrocyanate of potash* (formerly called the *prussiate of potash*). It is transparent, and of a beautiful lemon yellow color. In large crystals, it possesses a certain kind of toughness, and in thin scales, a degree of elasticity. Its solution is not affected by alkalies, but it is decomposed by almost all the salts of the permanent metals. The following table presents a view of the colors of the metallic precipitates thus obtained:—

Solutions of	Give a
Manganese	White precipitate.
Protoxide of iron	Copious white.
Deutoxide of iron	Copious clear blue.
Tritoxide of iron	Copious dark blue.
Tin	White.
Zinc	“
Antimony	“
Uranium	Blood red.
Cerium	White.
Cobalt	Grass green.
Titanium	Green.
Bismuth	White.
Protoxide of copper	“
Deutoxide of copper	Crimson brown.
Nickel	Apple green.
Lead	White.
Deutoxide of mercury	“
Silver	“ passing to blue in the air.
Palladium	Olive.
Rhodium, platina and gold	None.

Iron, though contained in the ferrocyanic acid and all its salts, cannot be detected in them by the usual tests of iron; for the liquid tests are fitted only for detecting oxide of iron as existing in a salt, and therefore cannot be expected to indicate the presence of metallic iron, while forming one of the elements of an acid. The beautiful dye, called *prussian blue*, is a *ferrocyanate of the peroxide of iron*, and is always formed when ferrocyanic acid or its salts are mixed in a solution with a persalt of iron. The usual mode of manufacture is by mixing together one part of the ferrocyanate of potash, one part of copperas and four of alum, each previously dissolved in water. Prussian blue, mingled with more or less alumine, precipitates. It is afterwards dried on chalk stones in a stove. The ferrocyanate of potash employed in the process is prepared by heating to redness dried blood, or other animal matters, with an equal weight of pearlash, until the mixture has acquired a pasty consistence. The *sulphocyanic acid* is a compound of cyanogen, sulphur and hydrogen. Cyanogen forms two compounds with sulphur alone, and one with selenium.

Pruth; a river of Europe, which rises in Galicia, in the Carpathian mountains, and empties into the Danube below Galacz. By the treaty of Bucharest between Russia and the Porte (May 6, 1812), the Pruth, from its entrance into Moldavia, was recognised as the boundary of the two empires, and all that part of Moldavia lying on the left bank, was ceded to Russia. In 1711, Peter the Great (see *Peter I*), after three days' disadvantageous fighting on the Pruth, was surrounded by the Turkish forces, and extricated only by a treaty, concluded through the prudence and promptitude of the empress. (See *Catharine I.*) By the treaty of Adrianople (September, 1829) it was stipulated that the Pruth should continue to form the boundary between the Russian and Turkish territories.

Prynne, William, a learned lawyer and antiquary, was born at Swanswick, in Somersetshire, in 1600, and was placed at Oriel college, Oxford, where he was graduated bachelor of arts, in 1620. He then removed to Lincoln's-inn to study the law, and became barrister, bencher, and reader of that society. His attendance upon the lectures of doctor Preston, a distinguished Puritan, strongly attached him to that sect, and he began to write as early as 1627, attacking the drinking of healths, love-locks, popery, and Arminianism, which he deemed the enormities of the age. In 1632, he published his work against theatrical exhibitions, entitled *Histrio-Mastix*; which, although licensed by archbishop Abbot's chaplain, yet, in consequence of some reflections upon female actors, that were construed to be levelled at the queen (who had acted in a pastoral after the publication of the work), brought a persecution upon the author in the star-chamber, which condemned him to a fine of £5000, to be expelled the university of Oxford and Lincoln's-inn, to be degraded from his profession of the law, to stand twice in the pillory, losing an ear each time, and to remain a prisoner for life. Prynne continued writing against prelacy in prison; until, for a virulent piece, entitled News from Ipswich, he was again sentenced by the star-chamber to a fine of £5000, to lose the remainder of his ears in the pillory, and to be branded in each cheek with the letters S. L. (seditious libeller). This sentence was also executed, and he was removed for imprisonment to Caernarvon castle, and afterwards to the island of Jersey. His spirit was not, however, to be subdued, and he continued to write until the meeting of parliament in 1640, when, being chosen representative for Newport in Cornwall, the house of commons issued an order for his release. He entered London, with other sufferers, in triumphant procession, and petitioned the commons for damages against his prosecutors. On the impeachment of Laud, he was employed as chief manager of the prosecution, and, when the parliament became victorious, was appointed one of the visitors to the university of Oxford, where he labored strenuously to advance the cause of Presbyterianism. He warmly opposed the Independents when they acquired ascendency, and used all his influence to produce an accommodation with the king, being one of the members who were excluded and imprisoned on that account. With the other excluded members, he resumed his seat in 1659, and displayed so much zeal for the restoration, that general Monk was obliged to check his impetuosity. He sat in the healing parliament as member for Bath, and on the restoration was appointed to the office of chief keeper of the records in the Tower. He occupied his later years in writings connected with his office in the Tower, and finished his life at his chambers in Lincoln's-inn, in 1669. Prynne was a man of extensive learning and indefatigable industry, but wanted genius and judgment. His works, of which Wood has given a catalogue, amount to 40 volumes, folio and quarto, the most valuable of which is his Collection of Records (3 vols., folio).

Prytaneum; the building in Athens, in which the Prytanes (those senators who presided in turn) held their meetings, and lived at the public expense during the thirty-five or thirty-six days of their presidency. The liberty of eating in the Prytaneum was one of the highest marks of honor, and was conferred only on those who had done important service to the state. Napoleon established a school in Paris under the name of the *prytanée*, in which some hundreds of scholars were educated, mostly at the expense of the state. They were educated together until they were twelve years old, when they were trained for civil affairs (for which there were five professors), or for the military service (for which there were three professors). At the age of fifteen years, they left this institution, for the purpose of completing their education in other seminaries.

Psalm; in general, a song; in a narrower sense, a sacred song (from the Greek ψαλλειν, to play on a stringed instrument, to sing). *Psalm* is used particularly to denote the sacred songs which are contained in the collection of religious lyric poems in the Old Testament. They are mostly of the time of David, or of a later period, one only, perhaps (the 90th, the psalm of Moses), being of more ancient date. (See *Hebrew Literature*.) David, who arranged the temple music, not only appointed from the Levites a considerable number of singers and musicians, but also composed for the divine worship sacred songs, which served as a model for many others. Several of the psalms that bear his name are not, indeed, written by him, but only composed in his manner, and therefore called by his name. Seventy-one, in particular, are ascribed to him, but some, even of these, are evidently of a later date. On the other hand, the contents and style of some which do not bear his name, and the superscriptions of which have, perhaps, been lost, show him to have been the author. To his times belong most of the psalms attributed to Asaph, Heman, and Ethan or Jeduthun. Twelve psalms bear Asaph's name, of which several show traces of a later origin. Asaph, son of Berachiah, was a Levite, and (1 *Chron.* xvi, 5) the first of the chief musicians appointed by David for the divine worship. The name of Heman is attached to one only (the 88th psalm). Heman, surnamed the Ezrahite, seems to have been a Levite, and is named among the chief singers of David. Some of the Psalms were composed by Solomon, who, according to the First Book of Kings (iv, 32) wrote "a thousand and five songs," but whose name is affixed, in our collection, to two only (the 72d and 127th), and of these the first seems rather to have been written for Solomon than by him. But, on the other hand, some others, of unknown authors, may be his; several are at least of his time, and refer to events of his reign—the consecration of the temple, &c. The opinion that some psalms are of the time of Samuel, and written by the prophet himself, is supported by no historical testimony, but is not improbable. Most of those by unknown authors seem to be of later date; some few apparently belong to the reigns of the kings immediately succeeding Solomon, several to the mournful days of the Babylonish captivity and of the return, especially those headed "for the sons of Korah," most of which are probably by the same author. Of later date, also, are probably those called "songs of the degrees," which some have referred to the return from Babylon, others to the annual pilgrimages to Jerusalem and the temple, and which others suppose to have been sung on the steps of the temple. Finally, a few seem to belong to the age of the Maccabees. The psalms of David, whether actually composed by him, or merely of his time, probably constituted an earlier collection, which extended to the 72d. Those which follow are, for the most part, more modern. Our collection consists of 150 psalms, but the manuscripts are not all numbered alike. The Septuagint and Vulgate unite the 9th and 10th, and the 104th and 105th, while they divide the 116th and the 147th into two, so that their number differs in some respects from that of the English translation. The Masorites, without any sufficient reason, divided the whole collection into five books. The Psalms are lyric poems, chiefly odes, and didactic, elegiac or idyllic. (See Lowth's *Hebrew Poetry.*) Most of them are in the form of prayer, or begin or end with prayer; and, whether they utter complaint, lamentation or consolation, are expressive of the deepest trust in God. Their morality is pure, except in some of David's martial or triumphal songs, or songs of lamentation, in which we find expressions of hate, cruelty, and national pride. But they are all truly national, and most of them of a pure religious tone. They are among the highest and sublimest efforts of poetry; and the holy light of revelation, the inspiring belief in the eternal true God, spreads over them a bright splendor, and fills them with deep fervor. They must not be compared with the other lyric productions of the ancient world; they are altogether the peculiar growth of the holy land, where the voice of revelation resounded most loudly, and was preserved the most purely. Many of their allusions are historical, and must be explained by history; but it would be going too far to attempt to explain every thing historically; since it is evident that much is metaphorical, some, though a smaller portion, allegorical, and much prophetical, referring to the future, rather than to the past. Some, on account of their local allusions, are less instructive to us; but most of them are rich in encouragement, consolation, filial trust, joyful confidence in God, evidences of humility and patience, and are well adapted for the sacred songs of Christians. It may be added that the collection in the Old Testament by no means contains the whole treasure of Hebrew psalms. Not only are the songs of Solomon lost, but there are many others mentioned in the Old Testament which are not in our biblical collection.

Psalmanazar, George, the assumed name of a man of letters, who is chiefly known as a literary impostor. He was born of Catholic parents, in the south of France, in 1679. His mother, being abandoned by her husband, sent her son to a school kept by Franciscan friars; and he was afterwards placed in a college of the Jesuits. He then studied among the Dominicans, and having finished his education, acted as a private tutor. Leaving his situation, he engaged in several adventures; and, at length, having stolen from a church, where it had been dedicated, the habit of a pilgrim, he roved about in that character, subsisting on charity. He afterwards became a common vagrant, and then servant to the keeper of a tavern, whose house he left clandestinely, and, renewing his wandering mode of life, he conceived the project of professing himself to be a Japanese convert to Christianity, who had found his way to Europe. As he did not find this scheme very profitable, he adopted the character of a heathen native of the island of Formosa, and, in order to support his pretensions, he contrived a new language, which he called the *Formosan*. At this time he became acquainted with a clergyman named Innes, who, conceiving he could turn the imposture to good account, persuaded the pretended Formosan to suffer himself to be converted to the church of England; and the clergyman and his new disciple went to London, where the latter was presented to bishop Compton and others, and the former was rewarded for his zeal with church preferment. Psalmanazar had the effrontery to translate the Church

Catechism into his newly-invented Formosan language; and he published a History of Formosa (1704), which passed through several editions. In the mean time he was sent to study at Oxford; and a controversy was carried on between his patrons and doctor Halley, doctor Mead, and some other less credulous persons, who refused to admit his pretensions. The imposture at length became clearly manifest; and the culprit, deserted by those whom he had deceived, was obliged to rely on the exercise of his literary abilities for his support. He settled in London, where he resided many years, and was employed by the booksellers, particularly in the former part of the Universal History, published in 1747. Towards the close of his life, he drew up an autobiographical Memoir, in which he expresses much contrition for the deceptions which he had allowed himself to practise. His death took place in 1763.

Psalmody; the art of writing, or composing, divine hymns, or songs. The composition and performance of psalmody appears to have been practised and encouraged in Germany, France, and the Low Countries, long before it was introduced into England. Most of the old melodies now sung in the service of the parochial churches were set by German musicians, and it seems highly probable, from all that can be collected on the subject, that the practice of psalmody had its origin in Germany. It does not, however, appear that even in that country it at first gained admission into public worship; but it was a long time confined to family devotion, especially among the reformed. Luther, who was a good musician, is known to have regularly practised psalmody with his friends every evening after supper, and is by some supposed to have been the author of the excellent melody of the 100th psalm. The first English version of the Psalms of David, which took place soon after that of the French, was made in the reign of Henry VIII, by Thomas Sternhold (q. v.), groom of the robes to that monarch, and John Hopkins, a schoolmaster, assisted by William Whittyngham, an English divine of considerable learning. Soon after the publication of this version, vocal psalmody was introduced into the church service, and various musical manuals appeared for the purpose of facilitating its practice.

Psalter; a collection of the Psalms (q. v.); also a large chaplet or rosary, consisting of 150 beads, the number of the Psalms in the Psalter.

Psaltery, or **Psalterion**; a stringed instrument much used by the ancient Hebrews, and by them called *nebel*. We know but little of the ancient form of this instrument, but have reason to conclude that it resembled that of our harp. The psaltery now in use is a flat instrument, in the form of a trapezium, or a triangle truncated at top. It is strung with thirteen wire cords, tuned in unisons, or octaves, and mounted on two bridges. It is performed with a plectrum, whence it is usually ranked among the instruments of percussion.

Psammeticus. (See *Egypt*.)

Psara, or **Ipsara** (Psyra); an island of the Grecian Archipelago, seven miles north-west of Scio, about five and a half miles in length, and as many in breadth. It consists almost entirely of a rock, thinly covered in some places with a vegetable mould. The population is about 400. It was settled about a century ago, by a little band of Greeks, who fled thither to escape the Turkish yoke, and supported themselves by fishing. In 1824, it was taken by the Turks; 600 Psariotes, the sole remnant of a population of 6000, which had perished under the Turkish scymetar, after defending themselves for a long time, in a mountain-fortress of the island, buried themselves beneath its ruins.

Pseudo (from the Greek ψευδος, a falsehood); a term or particle prefixed to names and words, to denote any thing spurious and false. Thus we call any thing which has a false name, as a book written under a feigned name, *pseudonymous*. (See *Anonymous*.) *Pseudo-Smerdis*, the false Smerdis. (See *Persia*.)

Pseudo-Demetrius. (See *Russia*.)

Pseudo-Isidore. (See *Isidore*, *Decretals*, and *Popes*.)

Psyche, the twofold signification of whose name (ψυχη, the soul, and a butterfly) added much to the effect of the beautiful allegory respecting her, was the daughter of Sol and Constancy. Apuleius (q. v.) makes her the daughter of a king, and relates her history thus: Psyche, whose two elder sisters were of moderate beauty, was so lovely, that she was taken for Venus herself, and men dared only to adore her as a goddess, not to love her. This excited the jealousy of Venus, who, to revenge herself, ordered Cupid to inspire her with love for some contemptible wretch. But Cupid fell in love with her himself. Meanwhile, her father desiring to see his daughter married, consulted the oracle of Apollo, which commanded that Psyche should be conveyed, with funeral rites, to the summit of a mountain, and there be left, for she was destined to be the bride of a destructive monster, in the form of a dragon, feared by gods and men. With sorrow was the oracle obeyed, and Psyche was left alone on the desert rock, when suddenly Zephyr hovers around her, gently raises and transports her to a beautiful palace of the god of love, who visits her every night, unseen and unknown, leaving her again at the approach of day. Perfect happiness would have been the lot of Psyche, if, obedient to the warning of her lover, she had never been curious to know him better. But by the artifices of her jealous sisters, whom she had admitted to visit her, contrary to the commands of Cupid, she was persuaded that she held a monster in her arms, and curiosity triumphed. As he slept, she entered with a lamp to examine him, and discovered the most beautiful of the gods; in her joy and astonishment, she let a drop of the heated oil fall upon his shoulders. Cupid awoke, and, having reproached the astonished Psyche for her suspicions, fled. After having tried in vain to throw herself into a river, she wandered, inconsolable, to all the temples, seeking every where her beloved, till she came to the temple of Venus. Here began her severest sufferings. Venus kept her near her person, treated her as a slave, and imposed upon her the severest and most trying tasks. Psyche would have sunk under the burden, had not Cupid, who still tenderly loved her, secretly assisted her in her labors. But in the last dangerous task imposed upon her, to descend to the realm of shadows, and bring away Proserpine's box of cosmetics, she almost perished. She succeeded, indeed, in the adventure; but, having opened the box, a deadly vapor issued from it, and she sunk lifeless to the earth. Cupid now appeared, and the touch of his arrow restored her to life. Venus was finally reconciled; by Jupiter's command Psyche became immortal, and was for ever united with her beloved. Her marriage was celebrated with great festivities, but her envious sisters threw themselves from a precipice. Raphael has given a most beautiful representation of the marriage, in the Farnesina at Rome.

Psychology (from ψυχη, the soul, and λογος, doctrine); the science of the soul, or the spiritual principle in man. The object of this science is to teach the laws and relations of the changes and phenomena which take place in the mind during the intellectual operations; or to trace the causes of these phenomena, and to discover the nature of the mind and its relations to the universe; or, in short, to treat of the mind, either as it manifests itself, or as it is in itself. Investigations of the latter class, which have for their object that which cannot be discovered by observation, constitute metaphysical or transcendental psychology; while those of the former class, in which the soul becomes a subject of observation, constitute empirical or experimental psychology. Empirical psychology may, therefore, be defined to be the scientifically conducted observation of the operations and changes of the human soul. As a science, it includes all the phenomena of the intellectual activity; as the science of the soul, it forms a part of anthropology, called *psychological anthropology*, in distinction from *physiology*, or *physiological anthropology*. It takes for granted the distinction of the spiritual substance (the I, the self) from the body, as a matter of consciousness, and does not therefore attempt to explain it. It treats of the mind, indeed, in its operations, and in so far as it is connected with the body, but neglects the mere physical phenomena. It is, more strictly than logic, an introduction to intellectual philosophy, since logic treats only of the laws of reason. As the developement of the human mind proceeds from the particular to the general, empirical psychology is the most proper introduction to speculative philosophy; the more so, as it makes us acquainted with the spiritual instrument which philosophy employs. In this course of investigation, the subject of attention is merely facts, of which every one is conscious, and which, therefore, are intelligible by all, and of which a distinct and connected view may prevent many errors in philosophical speculation. Again, empirical psychology is *applied philosophy*; for it must not only employ the philosophical forms in the disposition and explanation of facts, but also certain metaphysical notions (as power, cause, &c.), and requires a philosophical spirit to give it the character of a science; and it is thus distinguished from a mere natural history of the soul, the developement of which is prior in point of time. The latter merely records the facts in their natural order, while psychology presents them in their connexions, and according to the laws which regulate them; and in this view it is that part of applied philosophy which teaches the organization of the human soul, according to the external manifestations of its inward experience (consciousness). (See *Philosophy*, and *Metaphysics*.)

Ptolemaic System. (See *System of the Universe*.)

Ptolemais. (See *Acre*.)

Ptolemy; the common name of thirteen Greco-Egyptian kings, who reigned in Egypt, from the death of Alexander till it became a Roman province (about 290 years). They are more properly called *Lagides* (since they did not all bear the name of Ptolemy), from Lagus, the founder of the dynasty. 1. Ptolemæus Lagi (i. e. son of Lagus, a Macedonian; in reality, the son of Philip), called also *Soter*, the Savior (by the Rhodians, on account of the assistance which he rendered them), at first governor of Egypt, reigned thirty-nine years, and died 284 B. C. He embellished Alexandria, and founded the library in that city. His son and successor, 2. Ptolemy II (Philadelphus), a magnificent prince, is said to have founded Ptolemais and several cities, and to have built the Pharus (q. v.), which, however, is by some ascribed to his father. He died 247 B. C. 3. Ptolemy Euergetes died 221 B. C. His wife was Berenice. These three first Ptolemies were, in particular, the patrons of learning at Alexandria. (Concerning these and the other Ptolemies, see *Alexandrian School*, and *Egypt*.) Vaillant wrote a *Historia Ptolemæorum* (Amsterdam, 1701, folio.)

Ptolemy (properly Ptolemæus, Claudius), geographer, astronomer and mathematician, born at Pelusium in Egypt, A. D. 70, lived at Alexandria during the reigns of Marcus Antoninus and Adrian, and is said to have reached the age of eighty years. He is considered the first astronomer of antiquity. He corrected Hipparchus's catalogue of the fixed stars, and drew up tables for calculating the motions of the sun, moon and planets. The scattered observations of the ancients were first collected by him, and reduced to a system, which is contained in his work Μεγαλη Συνταξις, 13 books (Basle, 1538, fol.). The system of the world which he here exhibits is known under the name of the *Ptolemaic*. This work was translated into Arabic about 827, and from this translation, which bears the title *Almagest*, a Latin version was made by the command of the emperor Frederic II (1230). There are also other translations of this work, from the Arabic into Latin. Another important work of Ptolemy is his Geography (in eight books). He followed, in this work, the geography of Marinus of Tyre, which appeared not long before; but he enriched his work with important additions and improvements, both in regard to the latitude and longitude of places, and the boundaries of countries and provinces, and he is the first writer who sought to determine the situation of places in this way; his work also contains the first principles of the projection of maps (in Greek and Latin, with maps, by Mercator, 1618). Although necessarily imperfect, from want of observations, it is nevertheless important to modern geographers. Besides these principal works, we have other works of Ptolemy, on chronology and astronomy.

Puberty; that period of life in which childhood ceases and youth begins. It is much earlier in southern countries than in northern. In our climate, it is from the age of thirteen to fifteen in the female sex, and from fourteen to sixteen in the male, but, in individual cases, is accelerated or retarded by various circumstances. The physical and intellectual changes which manifest themselves at this epoch are highly interesting. The child is occupied and satisfied with present objects, and all the functions of the body appear to operate merely for the preservation of the individual, while the sexual organs, which are destined for the continuance of the species, and therefore to direct the thoughts to the future, are yet not developed for the performance of their proper functions; but, at the period of puberty, a sudden change occurs: the lively and easily-pleased boy, the gay and sportive girl, begin to appear thoughtful and reserved, and separate themselves from the childish plays in which the two sexes mingle together; the body grows more rapidly than before; the sexual parts are developed; the breasts become fuller; and, in both sexes, the voice becomes harsh and disagreeable before assuming the clear metallic tone, deep in man, high in woman, but in both very different from that of childhood. After this crisis is passed, the youth and maiden appear in all their bloom; they look upon the world as if with new senses; hope shines over the future, in which they live more than in the present; the region of the ideal opens before them, and they are eager to realize it, at the greatest efforts. This period is often attended with dangerous diseases: in some individuals, it is retarded or checked in its developement, by former maladies, and in this case the body is generally small and feeble, and the mind perverse; in others, it is attended with violent symptoms, which, however, may depend upon accidental causes, thwarting nature in her functions. Excess of blood, inflammations, bleeding, are among the common complaints of this period, arising from the irritable state of the vascular system; or the nerves and mind are too highly excited, giving rise to epilepsy, St. Vitus's dance, &c., or to mental aberrations, melancholy, enthusiasm, &c. (See *Physiology*.)

Public Debt. [For the amount of the national debt of the different countries of Europe, see the table in article *Europe*, also given, in the early copies, after the index to vol. v.; for those of the American countries, see the separate articles; the securities of which they consist are described in the article *Public Stocks*.] The policy of contracting public debts is good or bad, according to circumstances. In general it is not desirable for a government, any more than for an individual, to be in debt; and yet cases will justify a nation in drawing on its future resources. In pressing emergencies, taxation is not adequate to the necessary expenditures; and even if it were adequate, it may be better to distribute a part of the burthen through many successive years, by means of loans, because the suddenly levying of an immense tax might check the productive faculties of the people; and no wrong is done to posterity by this, where the object of the expenditure is as important to the future as to the present, as in case of national defence or public works. We may add, that increasing the means of public expenditure usually creates demand for an increased quantity of the products of the country, and thus stimulates industry. If, for example, the government has a large army to maintain on its own territory, and the products of the country can supply it with arms, clothing, food, and all other articles, the army will be a stimulus to all the kinds of industry concerned in affording its supplies. It may even happen that the very burthen, or what seems to be one, will, in such case, enable the people in general to be better clothed, fed and lodged, since the means of a people to produce the luxuries and comforts of life depend very materially upon the facility and rapidity of exchanges of products of different sorts of labor, and great public expenditure often creates a market by increasing consumption, and thus stimulating industry. But if the expenditure employs only the industry of a foreign country, as if an army is to be maintained abroad by the supply of articles wholly the product of foreign industry, there is no such compensation for the burthen of the tax. Another advantage of public debts is, their affording a means of investment, and thus encouraging the accumulation of property. Lands, houses, banks, canals, mines, and all other species of permanent property, afford a stimulus to industry and economy, as they offer the means of enjoying, permanently, the fruits of acquisitions, and public stocks have the same effect. Another effect of a public debt is its attaching the public creditors to the government. But before their number can be sufficiently large to make their aid important to the government, the national debt must, probably, be increased to an amount that will render it burthensome. Among the disadvantages arising from the facility of contracting permanent public debts, one is the facility which it gives for the carrying on of wars, and the indulging in any other expenditures. The wars of Europe, since the public debt of Great Britain commenced, under William III, are attributed partly to this cause. Another disadvantage is, the burthensome taxes, to which the necessity of paying the interest of such a debt, may subject the people. This is the operation of the national debt of Great Britain, at the present time. It is impossible to prevent the burthen of the taxation from falling, directly or indirectly, in a very great degree, upon the laboring and active classes; and, in Great Britain, this has become so heavy to the mere laborer, who has no capital, that his wages will but just support, or will not support, himself and his family, in the cheapest manner of living; and his life becomes one desperate struggle against want and starvation.

Public Lands. The property of the soil of the whole vast region, comprehended within the limits of the U. States, and not owned by the separate states or by private individuals, vests in the government of the U. States. From the Atlantic to the Pacific ocean, and between the northern and southern boundaries of the republic, it is calculated that there is contained a superficies of 1,400,000,000 acres. The political situation of the different parts of this superficies is exceedingly various. Dividing it into four belts or strips, parallel (or nearly so) with a meridian line, the first comprehends the Atlantic states, in most of which, particularly in the Middle and Northern states, the land is almost wholly the property of individuals.

and what does not belong to individual proprietors, belongs to the state. Thus in Maine there is a considerable portion of land belonging to the states of Massachusetts and Maine, and, in Georgia, large tracts in the occupation of the Cherokee Indians are claimed by the government of that state. The general government possesses no land in any of the Atlantic states, except small portions which have been ceded for forts, dock-yards, arsenals, and other like national purposes. The second belt of land westward comprehends the new states and territories of the Union, in all of which, except Kentucky, there are considerable, in most of them large, tracts of public domain; these states having been formed since the revolution, and their population settled on lands either purchased of the U. States, or still belonging to them. The number of persons of the latter class who thus occupy, without title, lands still belonging to the U. States, is very large, exceeding, in some cases, that of the persons who have acquired titles. They have, however, generally settled themselves with the purpose of eventually purchasing the land. The third belt lies westward of the organized states and territories. It comprehends lands acquired by the Louisiana treaty, and of which the Indian title has been extinguished by treaties with several tribes of Indians. As there is no organized civil government, there is no white population in this region, except hunters and vagrants. On the southern portion of this district, west of the territory of Arkansas and the state of Missouri, the tribes of Indians removed from the Atlantic states, have been, or are proposed to be, established. The fourth belt comprehends all the remaining district to the Pacific ocean. It lies on both sides of the Rocky mountains. The U. States have acquired the title to it by the Louisiana treaty (see *Louisiana*), by the discovery of the coast, and by interior exploration. The title, however, to that part of this region which is west of the Rocky mountains, is contested by Great Britain. Great Britain claims, not that the title is in her, but that the region is unappropriated, and open to the first comer. By a convention concluded in 1828, to last twelve years, it was agreed between the U. States and Great Britain, that neither government would take possession of it or occupy it, to the exclusion of the other, during the period of the convention, which either party might renounce, on giving twelve months' notice to the other. A chain of trading posts, belonging to the British North-West Company, extends through this region, to the mouth of the Columbia river. It is also visited by hunters from the U. States, but in numbers far less than those from the British colonies. The Indian title to this whole fourth belt of land remains unextinguished; and the soil of that part of it lying east of the Rocky mountains, is supposed, for the most part, to be too sterile to become the residence of civilized man. The title to these lands was the subject of the first great political controversy that divided the opinions of the citizens of the U. States, after the declaration of independence. The ancient charters of several of the states extended from sea to sea, or indefinitely to the west. They consequently crossed each other, and threw the same territory into the limits of different states. This was one source of dissension; and another was, that, as the greatest part of the western region was wholly unsettled, and the war was carried on at the common charge, it was deemed unjust by those states whose western boundary was ascertained, that they should have no interest or share in the vacant lands. The discontent of Maryland on this subject was so great that she refused to come into the confederation, and delayed the ratification of that instrument of government till 1781; and when she finally acceded to it, did so with a reservation of her rights. The serious controversies on this subject were put at rest by several acts of cession, made by the states interested to the U. States. New York set the example, by an act passed on the 1st of March, 1781. Virginia followed, on the 1st of March, 1784, and her cession was deemed of the greatest importance, as her claim extended over a vast region (the territory north-west of the Ohio), and had been strengthened by the military efforts of the colonial government of Virginia to protect the territory against the French in the former wars. Massachusetts ceded her claim on the 19th of April, 1785, and Connecticut hers on the 13th of September, 1786. By these several acts of cession, the U. States acquired an undisputed title to the territory north-west of the Ohio. Out of this territory have been formed the states of Ohio, Indiana and Illinois, the territory of Michigan, and an extensive territory west of it, which it has already been proposed in congress to organize under a separate territorial government. Connecticut, in making her cession, retained a considerable district in Ohio, known by the name of the "Western (or Connecticut) Reserve," which was finally ceded to the U. States in 1800, and by the U. States to Ohio. The foundation of the ample school-fund of Connecticut was laid in the proceeds of this reserved tract. North Carolina made a cession of the tract of country now forming the state of Tennessee, in 1789. It was subject to a great variety of claims, described in the act of cession. In 1806, congress ceded to Tennessee a considerable part of the public land in that state. The title to the residue is still vested in the U. States, but no land-office has ever been opened by the general government in this state, nor have the public lands been surveyed and brought into market. It has been represented to congress that all the valuable portions of them have been long settled, and attempts (hitherto unsuccessful) have been made, of late years, to obtain a donation of them, or a sale of thêm on very easy terms, to the actual settlers. South Carolina ceded her claims to western lands by an act of her state government of 1787. The cession of Georgia alone was needed for the amicable adjustment of this great controversy. This took place, after a series of highly embarrassing transactions, in 1802, when a compact was entered into between the U. States and Georgia, by which the latter ceded to the U. States all her claim to the lands west of the present western boundary of Georgia, and the U. States contracted to extinguish the Indian title east of that line, as soon as it could be done "peaceably and on reasonable terms." On the tract of land to which Georgia thus ceded her claim, the states of Alabama and Mississippi have been formed. The expenditure directly incident to the acquisition of the public lands may be stated as follows: but it must be recollected that other public objects, of the highest moment, have been affected by those treaties with Indian tribes and foreign powers by which the various cessions of land have been attained. The Indian treaties have been frequently treaties of pacification as well as territorial acquisition; and the political advantages of the Louisiana and Florida treaties vastly outweigh, in importance, the mere value of the land acquired.

Expenses of Indian treaties, from 1776 to 1826, ...	$3,868,379
Payment to Georgia, under the compact of 1802, . . .	1,250,000
Do. on account of Yazoo Scrip, ...	4,950,000
Purchase of Louisiana, . . .	15,000,000
Do. Florida, ...	5,000,000
Expenses of surveying 140 millions of acres, ...	2,164,000
Do. incidental to the sales of public lands, up to June 30, 1828, ...	1,435,197
	$33,667,576

Since the date to which these computations are brought, large expenditures have been made, and much larger ones may be expected to be incurred in extinguishing the Indian title to lands in Georgia, Alabama and Mississippi. The public lands were very early looked to as a source of revenue to the country. As early as 1776, Silas Deane, then a political and commercial agent of the U. States in France, communicated to congress a plan for the sale and settlement of the territory north-west of the Ohio;[*] and, as has been already observed, the calculations of the future value of this region formed the first great subject of collision between the several states of the confederacy. It was, however, a long time before an effective system was devised, by which the lands could be thrown open to settlement, or made available for the purpose of revenue. Bounty-lands having been promised, by the continental congress, to the officers and soldiers of the continental army, it became necessary to redeem that pledge as early as possible. The controversies between the several states, and between them and the U. States, retarded, for some time, the fulfilment of this pledge. On the twentieth of May, 1785, an ordinance was passed by the congress of the confederation, for ascertaining the mode of disposing of lands in the Western Territory; and this was the first act of general legislation on the subject. This act may be found in the new edition of the Land Laws, p. 349. Under it, very limited sales were made, not amounting, in the whole, to more than 121,540 acres. In addition to these sales, there were three considerable sales "by special contract," as it was called. The first was of "the Triangle," a tract of land on lake Erie. This tract was ceded to Pennsylvania, September 4, 1788. It consisted of 202,187 acres, and $157,640 accrued from the sale. The next sale was to the "Ohio Land Company," of a tract of land on the Ohio and Muskingum rivers, originally intended to include two

[*] Diplomatic Correspondence of the Revolution, vol. i, p. 79

millions of acres, but afterwards reduced by agreement to rather less than one million. The price of these lands was two thirds of a dollar an acre, receivable in evidences of the public debt. The Ohio Company commenced the settlement of the state of Ohio in 1788. The third of these sales was also in Ohio, to John Cleves Symmes, of the tract of land between the Great and Little Miami rivers, eventually reduced to 248,540 acres. On the tenth of May, 1800, an act of congress was passed, laying the foundation of the land system, as it now exists. It has received several modifications at subsequent periods, two of which are of great importance, and will presently be stated. Under this law, the substantial features of the land system of the U. States, are the following:—All the lands, before they are offered for sale, *are surveyed on a rigidly accurate plan, at the expense of the government.* The surveys of the public lands of the U. States are founded upon a series of true meridians. The first principal meridian is in Ohio, the second in Indiana, the third in Illinois, &c., each forming the base of a series of surveys, of which the lines are made to correspond, so that the whole country is at last divided into squares of one mile each, and townships of six miles each; and these subdivisions are distributed with mathematical accuracy into parallel ranges. The greatest division of land marked out by the survey is called a *township*, and contains 23,040 acres, being six English or American miles square. The township is subdivided into thirty-six equal portions or square miles, by lines crossing each other at right angles. These portions are called *sections*. The section contains 640 acres, and is subdivided into four parts, called *quarter-sections*, each of which, of course, contains one hundred and sixty acres. The quarter-sections are finally divided into two parts, called *half quarter-sections*, of eighty acres each, and this is the smallest regular subdivision known to the system. The sectional and quarter-sectional divisions are designated by appropriate marks in the field, which are of a character to be easily distinguished from each other. The half quarter-sections are not marked in the field, but are designated on the plot of the survey, by the surveyor-general marking the distance on one of the ascertained lines, in order to get the quantity of such half quarter-sections as exhibited by his plot of survey. The fractional sections which contain less than one hundred and sixty acres are not subdivided. The fractional sections, which contain one hundred and sixty acres and upwards, are subdivided in such manner as to preserve the most compact and convenient forms. A series of contiguous townships, laid off from north to south, is called a *range*. The ranges are numbered north and south from the base or standard line, running due east and west. They are counted from the standard meridian east and west. The superintendence of the surveys is committed to five surveyors-general. One thirty-sixth part of all the lands surveyed, being section number sixteen in each township, is reserved from sale, for the support of schools in the township, and other reservations have been made for colleges and universities. All salt springs and lead mines are also reserved, and are subject to be leased under the direction of the president of the U. States. The government has generally found it expedient to authorize the surveying of forty townships of land annually, in each land district, so as to admit of two sales by public auction annually, of twenty townships each. The general land office at Washington is under the superintendence of an officer, called "commissioner of the general land office." It is subordinate to the treasury department. The public lands are laid off into districts, in each of which there is a land office, under the superintendence of two officers, appointed by the president and senate, called the "register of the land office, and the receiver of public moneys." There are at present forty-two land offices. The register and the receiver each receive a salary of five hundred dollars per annum, and a commission of one per cent. on the moneys paid into their office. Till 1820, a credit was allowed on all purchases of public lands. In consequence of this system, large quantities of land had been purchased on speculation; and also, in the ordinary course of purchases, a vast amount of land-debt to the government had been contracted. To relieve the embarrassed condition of these debtors, an act was passed, authorizing the relinquishment of lands purchased, and substituting cash payments for the credit system. The most beneficial effects have resulted from this change, apart from the relief of those who were indebted to the government. At the same time the *minimum* price of the land was reduced from two dollars to one dollar and twenty-five cents an acre. In the first instance, the public lands are offered for sale, under proclamations of the president, by public auction, with the limitation of the minimum rate. Lands not thus sold are afterwards subject to entry, at private sale, and at the minimum price. A very large amount of public land is in the occupation of persons who have settled upon it without title. This is frequently done in consequence of unavoidable delays in bringing the land into market, and not from any intention, on the part of the settler, to delay payment. Laws have been passed, granting to settlers of this description a preëmptive right in the acquisition of a title, that is, the preference over all other persons in entering the land at private sale. These laws afford the actual settler no protection against those who might choose to over-bid him at the public sales; but it is believed that in most cases, by mutual agreement among purchasers, the actual settler is enabled to obtain his land, even at public sale, at the minimum price. It is stated, however, that great injury is done to the settlers, by combinations of land speculators, who infest the public sales, purchasing the lands at the minimum price, and compelling *bona fide* settlers to take them at an enhanced valuation. Should the settler refuse such an agreement, the speculators enter into competition with him at the sale. On the whole it would appear, that, on an average, the government obtains but the minimum price for its lands, although the quantity actually sold and occupied, being the choice of the whole quantity brought into market, is of course worth much more. Five per cent. on all the sales of public lands within the states severally, is reserved; three-fifths of which are to be expended by congress, in making roads leading to the states; and two-fifths to be expended by the states in the encouragement of learning. The first part of this reservation has been expended on the Cumberland road; and the treasury of the U. States is greatly in advance to that fund, on account of this public work. It appears that, up to the present time, about 150 millions of acres of the public lands have been surveyed. Of these, thirty millions have not been proclaimed for sale; twenty millions have been sold, and as much more granted by congress for education, internal improvement, and other purposes. There are, then, 110 millions of acres surveyed, but not sold; eighty millions of which are in the market, ready for entry at the minimum price, and thirty millions subject to be proclaimed for sale whenever there is a demand.

In a former article (*Agrarian Laws*, q. v.) we gave some account of the Roman agrarian laws, the name of which has long been familiar to every reader, although their real character has, until the investigations of Mr. Niebuhr, whose death every scholar deeply deplores, been much misunderstood. We there observed also, that the republic of the U. States, like that of Rome, had been much occupied in legislating on the subject of its *public lands*; and that, as laws had been made in some of the states of the Union, bearing a considerable resemblance to the agrarian laws of Rome, we should make some further remarks upon the subject in the present article. The nature of this work, as we then observed, forbids the full developement of a subject which partakes so much of a legal investigation as this does; but we think some illustrations derived from our laws, and the peculiar circumstances of our new country, will not be unacceptable. The laws and practice of the state of Massachusetts will afford sufficient materials for our purpose. This state has always owned a large body of public lands, situate in that part of its original territory which now constitutes a separate state, called the state of Maine. These lands, both from the necessities of the state government and the usual operations of capitalists, became an object of speculation. They were accordingly sold by the state, from time to time, in large tracts, to capitalists and speculators, who, in general, resided in Massachusetts Proper (as it was called before the separation of Maine), at a great distance from the lands thus purchased by them. Their lands, being thus entirely out of their view and control, were of course continually intruded upon, and possession taken, here and there, of parcels of them by emigrants from the more populous towns, who put them under cultivation, and erected houses and other buildings upon them for the common purposes of agriculture. These unauthorized settlers have been familiarly called by the cant term *squatters*, a name naturally derived from the act of settling upon lands in the manner practised by them. By the lapse of time the mere *possession* of these settlers, without any legal title to the land, ripened into what they considered to be a *right*, although the proprietors of the soil were, in general, wholly ignorant of such occupation of their property. At length, after a long series of years, it became impossible to dispossess them, however wrongful their possession, in its origin, may have been. It is true that the proprietors might, and did institute legal processes, and recovered judgment in our courts against the occupants; but still the officers of justice could not execute the sentence of the law and dislodge them from their possession. Instances not unfrequently occurred, where the officers of justice and the proprietors themselves, or their agents, were shot at, or suffered other acts of violence from the occupants. In this critical exigency, which threatened so much mischief to the public as well as individuals, and which was perhaps exaggerated by those men who wished to avail themselves of the occasion to obtain popularity for political purposes, it was thought necessary by the legislature of Massachusetts (in the year 1808) to pass a law, which was in effect, to a certain extent, similar to the Roman agrarian laws, by depriving the real *proprietor* of a portion of his rights and transferring them to the wrongful *possessor* of the lands sold by the public. To make the subject intelligible to persons who are not conversant with our laws, it should be observed, that under our former laws and usages, a title to land by mere occupancy, could not be acquired by a possession short of *sixty* years. But by the law of 1808, this term was shortened to *forty* years. So far, therefore, as it affected these persons who had previously purchased, either of the state or of others holding under the state, its operation was manifestly unjust. It compelled the proprietors to relinquish at once their claim to all that portion of their lands which they had been dispossessed of for more than forty years, and which they had purchased at the full value, under the faith of the ancient law of *sixty* years' possession. This essential change in the legal rights of the proprietors, in violation of what they deemed to be the fair intent and meaning of their contracts, caused much excitement and dissatisfaction among them. In a very general view, it may be said that there was evidently a hardship on both sides it was not equitable on the one hand, that the proprietor should be deprived of his land, nor on the other, that an innocent occupant, who had been suffered to remain in possession for thirty or forty years, undisturbed by the proprietor, should be suddenly expelled and stripped of the fruits of the labor of a whole life. By way of alleviating the difficulties of the case, it was provided in the same law (1808), agreeably to a well known principle of the Roman code, that when the proprietor should institute a process to recover his land, the occupant should have a right to claim an allowance for the value of the *improvements* which he had made upon the land thus occupied by him, and which were called in the Roman law, *meliorationes*, or *melioramenta*, and, by analogy, in the popular language of New England, *betterments*.* Our law, however, did not, like the Roman, make any distinction between the occupant who did, and him who did not, know that the land was the private property of an individual. Notwithstanding the supposed injustice of the law, it has remained in operation, with some amendments, to the present day; and the lapse of time is daily rendering it less and less unequal and injurious in its effects. In practice, its operation was the more unequal as respected the proprietor of the land, from another circumstance; for he, being usually a non-resident or stranger, and the occupant being an inhabitant of the same territory from which the jury was taken, who were to try the question of right between the parties, the proprietor was in the more danger of suffering injustice from the prejudice or hostility of the jury. But here again the law interposed a useful check, which was, that no person who was interested in a similar question, should be a member of the jury. It is unnecessary to go further into the details of this law. In its origin and principle it was an agrarian law, though in a more mitigated form than those which caused such violent commotions in ancient Rome. A little reflection will enable us to reconcile some differences in respect to the Roman laws, about which there has been some confusion, even since Mr. Niebuhr gave his new views of them. Some readers have inferred from his language, perhaps in itself too unqualified, that the agrarian laws of Rome only affected the *public* lands, and that there was no violation of private rights—an opinion quite inconsistent with the strong remark of Cicero (*De Offic.* ii, 21), quoted in the article *Agrarian Laws*. From a consideration of our own laws respecting public lands, we can easily see how the private rights of purchasers under the government and their sub-purchasers, might be invaded by mere occupants, who should settle without permission upon the lands of those purchasers; and after such wrongful possession had continued for a number of years, it would become a popular measure with the leaders of parties in Rome, to pass agrarian laws, in order to take away these occupied lands from the rich legal proprietors, and confirm them to those, who, like our *squatters*, had no other claim to them than mere possession. Accordingly we are told by writers on this subject, that the leading provisions in the agrarian laws were those which affected the right of *possession*, and which were, in principle, like our laws on that subject. From the unequal distribution of property between the nobles and plebeians of Rome, the contest would be proportionably more violent than in a state of society like ours. The lands naturally fell into the hands of the moneyed men, and they were almost literally the patricians alone. We have here attempted to illustrate our views of this subject by an example from only one of our states; but similar laws have been made in other states of the Union. The public lands belonging to the general government of the U. States, and not under the control of any individual state, being situate at a great distance from the main body of our population, have not yet, we believe, been subject to the same embarrassments from conflicting rights, as those which lie within the jurisdiction of the particular states of the Union.

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* This term was introduced because the word *improvement*, which might have been taken to convey the idea of *melioramenta*, was already familiarly used in New England in the sense of *occupation*.

Public Stock is property in a public debt (see *Public Debt*); and the evidences of this property are certificates issued by the state, showing its obligation to its creditors. These public stocks now exist in almost all Christian states, and are so various, that it is a particular study to learn their nature, their different value, the degree of their credit, the mode of buying and selling them, of raising the interest on them, &c. The shares in these stocks, in modern times, are generally made transferable, so that they have become an important article of commerce. Various methods have been adopted to induce capitalists to lend their money to the state. The attraction consists in affording them a prospect of receiving a greater income from their money in this way, than could be procured by any other safe mode of investing it, and in facilitating the transfer of the claims, and exempting from taxes the income arising from the property. 1. The first was by means of *annuities* (q. v.), so called; that is, compacts in which the state pledges itself to pay the lender a fixed sum for his capital annually, which he could obtain in no other way with equal ease and convenience. These payments are either confined to a certain period, as forty-nine or ninety-nine years, at the expiration of which the capital is retained by the state, because the lender has been sufficiently compensated for it by the income he has received; or else the payments are continued till the state returns the capital (perpetually). In this latter case, however, the state is at liberty to refund the capital whenever it is inclined to do so, or to retain it forever. The creditor has no legal claim, except upon the stipulated interest. 2. *Life annuities* and *tontines* were another invention to bring capital into the public treasury. The former secure to lenders a certain income during their lives. This income is regulated by the age of the persons thus advancing their money, being greatest for the most aged. Many prefer this mode of disposing of their property, because, with a small capital, they may enjoy a larger income than could be obtained in any other way. Life annuities have been frequently secured on the life of another person who had a prospect of long life, and who, being generally known, it was unnecessary to furnish attestations respecting his age, health, &c. Thus many annuities were formerly taken out in France on the life of the king and other individuals of eminence in the state. Any person holding such an annuity was at liberty to transfer it to any one else, or to bequeath it. *Tontines* are stipulations by which a company of shareholders are to receive a certain interest from the state (somewhat higher than can be otherwise obtained on good security) for the whole capital which the members of the company contribute in equal shares; so that, while they all live, they enjoy this interest; and, when any die, the whole interest goes to the survivors; so that the longest liver finally receives the whole interest during his life. There may, however, be many varieties in these contracts. *Perpetual rents*, as they are called on the continent of Europe, that is, stocks which the government is under no obligation to redeem, have become the means to which states most resort, and which have found the most favor both from states and people, and, by their increase, and the facilities which are afforded for their transfer, have acquired great importance. The value of all public obligations rests fundamentally on the fact, that taxation annually produces a revenue sufficient to pay the stipulated amounts punctually, and that the government has a love of justice, and prudence, and skill in the administration, which will prompt it to regular payment at the appointed time: thus all national debts are dependent on the wealth and income of the people. It would be very difficult to assign the amount of these stocks, in Europe alone, with any degree of accuracy. In the German Hermes, the interest which Europe has to pay every year to its creditors is stated at 750,000,000 marks banco, or about 258,000,000 dollars. Suppose, now, the rate of interest to be, on an average, five per cent.; then we shall have more than 5,160,000,000 of dollars embarked in these speculations. If we fix it at three per cent., the amount paid on the nominal capital of the public debt in England, the sum would be still greater. As the traffic in these obligations is so important, and they often pass through numerous hands, and every commodity in circulation employs a quantity of the common means of exchange proportioned to its value, it is not too much to assume that, under common circumstances, from 40 to 68,000,000 dollars in specie are requisite to maintain the yearly traffic.

I. *English Stocks.* England has a greater public debt than any other nation. (See *Great Britain*, and the table in *Europe*, also given, in the early copies, after index to vol. v.) But the resources of that country are so great, and the punctuality with which its obligations are discharged so unfailing, and the moneyed men in the country so numerous, that its stocks are the most in demand. The national debt of England consists chiefly in stocks redeemable at the pleasure of the government. They are variously designated, partly according to the rate of interest which the government engages to pay; as five, four and three per cent. stock; and partly from the financial operations to which they have been subjected: thus the name of *reduced funds* is given to those on which the interest has been reduced, in consequence of the option which the government has offered to the public creditors to receive back their capital, or to take a lower rate of interest.—*Consolidated annuities* is a name derived from an operation of the government, commenced in 1751, when an act of parliament was passed, by which the various loans, for the repayment of which particular funds had been assigned, were united, and all the funds, including the sinking fund, consolidated into one. These various names convey no idea of important differences to the owners and purchasers of English stocks. Even the distinction between funded and unfunded debts is connected with no difference in the degree of their security. For although a regular portion of the national revenue is appropriated to the payment of the former, yet the interest of the latter is equally secure; and they are changed into funded debts whenever the state finds it impolitic to discharge them in the common way, and the creditors concur in the alteration. For the gradual reduction of the funded debts, a sinking fund was established, designed to diminish the debt by repurchasing the shares at their current price—a method which has been adopted by many European states. It has been lately discontinued. (See *Sinking Fund.*) In England, it has served, from the beginning, to keep up the credit of stocks, as it has maintained a constant demand for them in the market; and this it has done the more effectually in proportion to its amount; for, in case the stocks should fall too low, the price may be raised again by extinguishing a part of the debt. This effect of the sinking fund, in facilitating the sale of the public stocks, greatly contributes to recommend them. For capitalists feel it extremely convenient to hold certificates of stock, which not only yield a regular interest, but may, at any moment, be turned into money without loss, and perhaps with profit. The history of the origin of the various debts of England, their conditions, the measures adopted for the payment of interest, or the repayment of the capitals, or the sinking them by repurchase, may be found in Grellier's History of National Debt, and in Hamilton's work on the same subject. A concise view of the same has been presented by Bernard Cohen in his Compendium of Finance (London, 1822). Although a large amount of the English stocks always remains stationary in the hands of companies, public institutions, and many private persons who retain them as the safest source of income, still a large proportion are bought and sold every day; and they are a very important article of traffic in England. As the three per cent. stock is the most in the market, the price in the public papers relates to this, if the kind of stock be not particularly designated. Moreover, it regulates the price of the three and a half, four, five and six per cent. stocks, which vary proportionally with it. Those public obligations which entitle the holder to payment of the capital at a time designated, or to an equal amount in the public stocks, as exchequer bills, navy bills, &c., naturally bring a price proportionally higher. The best standard of the credit of the public stocks is the rent of land.

At present, land in England is generally sold at thirty-six years purchase in times of peace, and at thirty years purchase in time of war; that is, capital invested in landed property yields two and seven-ninths per cent. in time of peace, and three and one third per cent. in time of war. Within the last thirty years, the three per cent. stocks have been worth from fifty-eight to eighty-two per cent.; so that the stocks, at the highest rate during this period, have yielded but about the amount of land rents in time of war; for a man, who purchases three per cent. stocks at eighty-two per cent., receives but about three and a half per cent., on his capital. In buying stocks in England, the purchaser does not receive any certificate; but his name is merely registered in the great national debt books, together with all his characteristic designations. If he ever sells the whole, or a part of it, this is transferred from his name to that of the purchaser. Every proprietor can, indeed, have a certificate of what is due to him in the national debt books; but, in the stock-market, this certificate is not considered of value, and a person may sell and transfer his property in the funds without being asked for it. Every stockholder must receive his interest, or make his entry and transfer of stock himself, or by a representative regularly authorized. It would be impossible to conceive, how the book-keepers could be convinced, that the multitude of claimants, who appear before them, are the true proprietors, if it were not known that the greatest part of the business, both the transfer of capital and the receipt of interest, is negotiated by stock-brokers, who are well known to the book-keepers; and cases of imposition are, in fact, very uncommon. Moreover, the direction of all the traffic in stocks is committed to the bank of England. The registry books are arranged alphabetically, and distributed into several chambers, which are marked with the initial letters and syllables of the books they contain. Thus every one can easily find the place of the book which contains his account. The payment of the dividends, which occurs at an appointed day, semi-annually, to the amount of more than 68,000,000 dollars every time, is completed in fourteen days.

II. *French Rentes and public Certificates.* The national debt of France was formerly far greater than that of England. After the death of Louis XIV, it was estimated at 3,111,000,000 livres (about 550,000,000 dollars), when England had a debt of only about one third of this amount, namely, £45,000,000 sterling, both reckoned according to their nominal capital. But the relative amounts are now wholly changed. The nominal capital of the national debt of England was, in 1823, about thirteen and two thirds that of France. France reckons its debt, however, not according to the amount of the capital borrowed, but only according to the annual amount of money to be paid, which gives a juster idea of its extent, both kingdoms having discharged themselves from the obligation to pay back the capital, and being bound to pay merely the interest. England, in fact, pays annually to its creditors about three and a half times what France pays. The nominal amount of the debts of these two states will be found in the table of European states, after index to vol. v. This is not the place to inquire whether such a difference makes the condition of England more unhappy than that of France. We will only remark, that the national wealth of England during that period has increased in a much greater ratio than the wealth of France, and the English stocks have always borne a higher price than the French; for, while the French five per cent. stocks are worth but ninety-seven per cent., the English are commonly worth 145. If we carefully examine the history of the national debt of France, we cannot help wondering how the French stocks stand so high as they do. Immediately upon the death of Louis XIV, the regent reduced the borrowed capital and the interest arbitrarily, and without consulting the creditors, one third; and both debt and interest still continued to be paid as irregularly as ever. In this state of things, Law (q. v.), a Scotch projector, promised to cancel the public debt with paper. But this project embarrassed the finances of the kingdom more than ever. Various measures were taken, each more fallacious than the preceding, to improve the state of the treasury, and to diminish the national debt. They were designed to quiet the clamors of the public creditors, without giving them any thing but the consolation that they should not lose the whole of their demands. The revolution for a long time put an end to all claims, and almost wholly destroyed the value of the stocks; so that, when Bonaparte was in Egypt, a *rente* of five francs might be purchased for ten, five, and even three francs. In 1798, a new disposition was made of the public debt. All the claims of the emigrants were cancelled; two thirds were struck off from the remainder of the debt; and the third which was left was changed into five per cent. annuities, called *tiers consolidés*, which compose a large part of the present stocks. They amounted, in 1798, to 302,000 francs a year. Since that period, numerous additions have been made to the debt by subsequent loans, so that, in 1822, 178,364,560 francs were annually required for the discharge of the perpetual and funded *rentes*. But there are many unfunded *rentes* to be paid besides; and the sinking fund consumes 40,000,600 francs every year. In 1822, therefore, the whole amount of the annual *rentes* was 228,864,560 francs, exclusive of four millions newly created for the Spanish war. During the last war, the *rentes* were again paid irregularly, and the arrears accumulated. These and other debts, which were contracted in the course of the war, were paid in obligations bearing five per cent. interest, and to be discharged at their full nominal value, within five years from 1821. These obligations are called *reconnaissances de liquidation*, and are likewise transferable. The nominal amount of those remaining due in 1828, was about 300 million francs. At present, France seems to be very punctual in the payment of its *rentes*; and therefore the French stocks, of late years, have brought a high price, and did so, in fact, even during the reign of Napoleon. The economical regulations for liquidating claims for the payment of interest and principal are a good imitation of the measures of England, so far as relates to the funded five per cent. *rentes*. They are all registered together in the *grand livre des dettes publiques*, after the manner of the books of the bank of England. Each stockholder has a distinct leaf for every *rente* he possesses. The dividends of the five per cent. annuities are paid twice a year, March 22 and September 22. The amount paid is stamped on the back of the certificate, and the owner of it gives a receipt. The dividends can be paid not merely in Paris, but likewise in the provincial towns. Owners who cannot receive their dividends personally, and are unwilling to let their certificates go out of their hands, appoint a special attorney to receive what is due, who is furnished with a certified copy of the original certificate. Besides the consolidated five per cent. *inscriptions*, there are other stocks in France, of various kinds, with which an important traffic is carried on, and which are subject to different regulations. They include, 1. the before-mentioned *reconnaissances de liquidation*. 2. Bank stocks. The shares in the bank of France are 90,000, each of the value of 12,000 francs, paying yearly sixty francs at least. If the profits do not yield this amount in any particular year, it is made up from the reserved fund. These stocks are transferable. In 1822, they were twenty-five per cent. above their nominal value. 3. The obligations of the city of Paris. The city of Paris was authorized, in 1816, to create stock to the amount of 1,500,000 francs, to defray the expenses of the city. The sale was but small during that troubled period, and the city was therefore afterwards empowered to issue 33,000 certificates, worth 1000 francs each, and payable to the holder, to be discharged within twelve years, ending July 1, 1829. These certificates bear an interest of six per cent. a year, to be paid quarterly. 4. Another kind of paper often found in the market consists of *actions des ponts*. They are issued by a company which has built three bridges over the Seine, and comprise 3780 shares, at 1000 francs each. The dividends are fixed, every year, at a meeting of the proprietors. The amount is regulated by the income of the bridges, which is all divided among the shareholders, except one thirtieth. This thirtieth is distributed into three parts, of which one goes to the support of the bridges, and the others form a capital to pay off the stocks, June 30, 1897. Besides, there is a multitude of shares of insurance companies. 5. There is also in Paris a *caisse des depôts et consignations*, where money, in coin or notes, is taken by the bank of France, and three per cent. interest paid upon it, commencing after it has been in the treasury thirty days. The money deposited may be taken out at any time by restoring the receipt.

III. *Austrian Stocks*. Austria has long had a large debt, and, till the French revolution broke out, punctually fulfilled its obligations to its creditors. But, during the war of the French revolution, its finances fell into great disorder; and various measures, adopted to remedy the evil, did not contribute to the public credit. Among these was the immense increase of paper money since 1797; for, till that time, the bank paper of Vienna, which, for a long period, was the common medium of exchange, remained about on a par with specie, it being exchangeable, at any time, for silver, on presentment. But, this year, the payment of specie was limited, and, the year following, stopped entirely; and the paper money so increased, that it soon fell rapidly below the value of silver. The means resorted to as an antidote for the consequent embarrassment were ineffectual. One of the most remarkable was adopted in 1798. It was a forced loan, by which the holders of public stocks were compelled to add thirty per cent. to what they had already paid, on pain of losing the whole; in consideration of which they were to receive five per cent. instead of four. As the loan was all made in convention money, it was understood that the interest should be paid in the same. But this was extremely difficult for the state, on account of the continual depreciation in the value of the paper currency; and, finally, it seemed to be impossible, when an attempt, made in 1802, to recruit its declining strength by lottery loans and other measures, failed. In 1811, therefore, the interest was reduced to half; and, in order to make this half still smaller, the existing paper money was changed for *redemption notes*, so called, a note of one guilder being paid for five old paper guilders. It was hoped that these certificates would be esteemed as valuable as specie. Hence the reduced interest was to be paid in this new paper, and not, as before, in coined money. But these notes never fulfilled the design for which they were created; and a large amount of new paper, under the name of *anticipation certificates*, was put in circulation, about equal in amount to that which the redemption notes had been intended to supersede, so that, in a short time, both kinds of paper sunk as low as the old bank notes. In this way, the early creditors of the state lost a large part of their interest and capital. In 1816, the finances of Austria were put under better management. The new administration devoted their chief attention to two objects:—First, to raising the value of the paper money, and, as far as possible, abolishing it; and next to fixing the public credit on a new basis, by restoring to the old claims a portion of their rights, and by negotiating new loans on a more firm and solid basis. In 1816, a new bank was furnished with funds in specie, and empowered to issue new notes, which were to be paid to the holders on demand in silver money. This bank, to which was intrusted the whole business of amending the currency and public credit, commenced its task by giving notice, June 1, that any person might bring in any sum in the old paper money, and receive for it five sevenths in new certificates, bearing one per cent. interest in convention money, and two sevenths in new bank notes, which every one might exchange at the bank for their value in convention money. Thus a proprietor, who deposited 7000 guilders in paper money, received for it 5000 guilders in certificates, bearing an interest of fifty guilders in convention money, and 2000 guilders in new bank notes, which he might exchange for convention money at the bank, on demand. But the pressure to procure specie in exchange for the bank notes thus obtained was so great that the supplies and resources of the bank would have soon been exhausted, so that the whole system was abandoned a short time after it was established. Several millions of one per cent. certificates were created by this operation, and some of them are still in circulation. Bank shares, at 500 guilders convention money, might be obtained for 2000 guilders in paper money and 200 in convention money. The paper money thus obtained was to be destroyed. Both measures, however, only partially effected the desired object, and they were soon abandoned. October 29, therefore, of that year, a measure was brought forward founded on juster views. This gave rise to the *metalliques*, so called. A voluntary loan was opened, and the deposits were received partly in public certificates bearing interest and partly in paper money. For an old Austrian certificate of 100 guilders, and the additional sum of 80, 100, 110, 120, 130 guilders in redemption or anticipation notes, according as the old certificate yielded six, five, four and a half, four, three and a half, or three per cent. interest, a new state obligation was given of 100 guilders, bearing interest at five per cent., both payable in specie. A sufficient fund was, at the same time, provided for the punctual discharge of the interest, and for the gradual extinction of the capital by repurchase. This gave assurance to the proprietors of these certificates that they might sell them, with scarcely any loss, whenever so inclined. These *metalliques*, therefore, soon obtained extensive credit, and so confirmed the financial strength of the government, that it boldly resolved to establish the public credit on a broader basis. By a patent of Jan. 22, 1817, the sinking fund was organized after the example of the sinking fund of England, and all the funds were united in one for the payment of all public debts; and, by a regulation of March 21, 1818, the whole system of debt was reduced to such order that the proprietors of the old certificates began to be encouraged that their rights would be restored; and this hope gave the obligations once more a limited circulation. The capital of the old debt, of which the interest was reduced to half in 1811, was divided into sections, each of one million guilders. Five of these were to be restored every year to the enjoyment of full interest, and as many more to be bought in by the sinking fund. This plan has hitherto been very successful. By the gradual liquidation of the redemption and anticipation certificates, their amount was diminished, June 30, 1825, to 149,320,813 guilders (a guilder is about forty cents); and, June 30, 1828, the amount in circulation in Austria was only 78¼ million guilders. The *metalliques* have therefore come into the market in all the principal commercial cities of Europe. In the year 1821, the whole amount of the new debt contracted since 1815, or the five per cent. *metalliques*, was estimated at 207,960,290 guilders, and the proportion of the sinking fund to the debt at one fifty-seventh—the same ratio which the sinking fund in England bears to the public debt. The credit of these *metalliques* has risen very much. They stood, in 1817, at forty-eight, but had risen, in the beginning of 1823, to eighty-six, and even during the war between Turkey and Russia, they were at ninety-five. Besides these *metalliques*, the before-mentioned Rothschild lotteries are well known in the money markets. The Austrian government, in 1820, negotiated, through a company formed by Messrs. Parish and Rothschild, a *lottery loan* of 20,800,000 guilders, and soon after a second of 37,000,000 guilders, convention money. The shareholders in the first loan were to receive back their capitals, and, instead of interest, premiums at the time of the repayment of the capitals, which was to take place in the course of the next twenty years. The smallest sum which an advance of 100 guilders can yield, is 120 guilders, and the largest 120,000. In the most unfavorable event, a man must wait twenty years for his capital and premium. The second loan was opened July 28, 1820, at four per cent.; and the government bound itself, within twenty-one years, to pay off the capital, with interest and premiums, by means of fourteen lottery drawings. The proprietors received certificates, dated January 15, 1821, each for 250 guilders. Whether a share in such a lottery can produce more than four per cent. interest, depends wholly on the time of drawing, and the premium which chance may allot. The price of the tickets of the first loan varies between 118 and 120, and of the second between 98 and 102. On an average, the premiums of the first and the interest and premiums of the second loan are equivalent to an interest of five and four fifths per cent. This new order of things was accompanied, in 1817 and 1818, by an improved organization of the national bank. The shares, which at first stood at scarcely 500 guilders in convention money, have now reached nearly 1000, and are in great demand, for they yield an annual interest of sixty guilders. The bank is, at present, wholly independent of the government.

IV. *Prussian Stocks*. Prussia had no public debt till 1787, but, on the contrary, had a considerable treasure in specie, and, even under the reign of Frederic William II, till 1806, owed only thirty million dollars, which were to be paid off at fixed periods. But the unhappy French war of 1806, and the more successful one of 1812—15, augmented the public debt of Prussia; and, after it had been reduced to order, her stocks came into the market in the principal cities of Europe, like the English, French, Austrian, and other public stocks. From the statement of February 17, 1820, it appears that the capital of the debts bearing interest then amounted to something more than 180 million Prussian dollars (about 123 million Spanish), and the yearly interest, or *rente*, to 7,637,177 Prussian dollars. Several millions have since been extinguished by the sinking fund. At present, the following Prussian stocks are in the market:—1. the proper national stocks, which comprehend the greatest part of the public debt, and the proceeds of which, in 1820, were 4,780,000 Prussian dollars (about 3,250,400 Spanish). They consist in obligations, which bear four per cent. interest, and are to be completely discharged within five years. The interest is paid January 1 and July 1 of every year, both in Berlin and in the provinces. Provision has likewise been made for their payment in specified places in foreign countries. The certificates promise that the capital shall be paid back by the annual extinguishment of one million at par; but this regulation has been modified by a later one, ordaining that the stocks shall be diminished by being repurchased, at the current price, till they stand at par, and then the repayment shall commence. The market value of these notes varied, in 1820—23, between sixty-seven and seventy-five per cent., and, still later, rose to nearly ninety; in 1828, it was at ninety-three. Of a portion of these obligations, premium lotteries were formed, thirty millions being sold, accompanied with premium certificates, at their full value in Prussian currency. The hope of receiving a great premium on the drawing of these lotteries (ten drawings were to take place, one each six months) produced such a demand for this species of stocks, that they rose to 120—130 dollars and upwards. 2. The shares in the English loan which was negotiated with Rothschild, in London, in April, 1818. The nominal amount is five million pounds sterling, at five per cent., and to be repaid within twenty-eight years, a certain amount annually, by repurchasing the notes, or redeeming them at par, if they are worth it. The certificates are expressed in English money, and the interest is payable in London. The unfavorable conditions, under which this loan was obtained, are to be attributed to the emergencies of the period. Though the interest is five per cent., only seventy-one per cent. of the nominal amount of the loan was received; and the government took the risk of the fluctuation of exchange in the payment of interest and principal. In London itself, before the certificates were issued, they had risen to eighty per cent. Besides these, there are the obligations of the Electoral Mark, which are of an early date, and the *Hypothekscheine*, secured on mortgages of the public domains, which were not created till after 1806. Both yield four per cent.. and form together a capital of nearly nine million Prussian dollars (above six million Spanish), which, like the interest, is paid according to the original engagement. There are also the stocks of the provinces and principal cities. The mortgage stocks (*Pfandbriefe*) form a capital of perhaps fifty or eighty millions, the shares of which are bought and sold, and yield a secure income. These are created thus:—The landed proprietors, under the authority of the government, have formed associations in several of the Prussian provinces, which borrow money on the security of their estates collectively, and make loans to the individual proprietors, in consideration of mortgages of their separate estates. There are five of these provincial associations in Prussia. To the Prussian stocks belongs, also, the bank paper, which is transferable. The circulation of these notes, indeed, is somewhat difficult, for they are generally made payable to the particular individual to whom they are issued, and cannot be transferred without legal formalities. The royal bank receives money at two or three per cent. a year, and repays the money deposited, small sums on demand, and larger ones at fourteen days, or four weeks' notice. Hence it is filled with deposits, trust money, orphans' money; and many capitalists invest in it their unemployed funds. The violent measures of Napoleon's administration rendered it necessary for the bank to stop payment, in consequence of the loss of all its resources. The old system has been long resumed in regard to all moneys deposited since 1808; but the pressure of circumstances has hitherto made it impossible for the bank to fulfil its obligations in regard to the old capitals. The government has promised, however, that this debt shall be cancelled.

V. *Russian Stocks.* Previous to 1810, Russia had no debt on which interest was paid, and of which the stocks were in the market, except 83,000,000 guilders due in Holland; and the paper was hardly found in the commercial world out of Amsterdam. For many years, this stock stood at par. In 1810, a loan of twenty millions was opened in *assignats* at six per cent., for which the government pledged ten million silver roubles, with six per cent. interest, to be paid in five years to those who should not prefer perpetual annuities in *assignats*, or silver roubles. The design was to diminish the immense quantity of *assignats*. It was intended to have many series of these loans following one another, to destroy the paper roubles which might be brought in by their means, and thus to raise the paper money gradually to par, or perhaps to put it wholly out of circulation, and substitute silver money in its place. Although these loans never accomplished the desired object, and seemed to be founded on mistaken principles, yet they helped to confirm the credit of the government, because every stipulation was punctually fulfilled, and a regular financial system was forming in regard to the public debts. The interest of the first loan in silver was regularly paid; and the capital, too, was repaid in the way stipulated, notwithstanding the distress to which the kingdom was reduced by the war of 1812. The credit which the government thus acquired was, perhaps, worth the sacrifice of some millions; for the state had hardly any other advantage from this loan. These stocks, during their five years' continuance, were in great demand, and their price speedily rose above their par value in *assignats;* but this was not strange, for paper roubles were not worth in the market one third of silver, and, by the terms of the loan, a silver rouble was paid for every two paper roubles advanced. Only a few of these obligations are now in circulation, for, in 1815, they were nearly all cancelled. This system, however, was continued under better conditions as regarded the government, and to a much greater extent. The diminution of the *assignats* was the pretext for every measure. But the deficit in the income, and the expense occasioned by the war of 1812, were perhaps the principal causes of the successive loans. There have been three or four since 1816. The two first, made in 1817, at Petersburg, of seventy million roubles in *assignats*, were mostly reduced to silver money at a fixed valuation; the third and fourth were in England, in 1820, and amounted to forty million silver roubles. All the stocks of this kind bear five per cent. interest, and are regulated after the manner of the stocks in other countries, wherein the government merely pledges itself to discharge the stipulated interest punctually. The liquidation of the capital by the sinking fund is effected by re-purchasing the certificates or otherwise, as the state of the treasury renders most expedient. The arrangements for the public debt are similar to those in France and England. All the debts since 1817 have been registered, with the creditors' names in alphabetical order. At the same time, the creditors receive notes (inscriptions), which contain what is written in the book of registry, and the conditions and stipulations of the government, and are so prepared that they may be endorsed in blank in a foreign country, being verified by a Russian consul, and in this way transferred to any one without difficulty; and the directions, necessary in case of transfer, are contained in the *inscription*. An important traffic is now carried on, in all the markets of Europe, in Russian stocks. The interest on the English loan is payable, not merely in Petersburg, but in Hamburg and London, in the money of those places, at a fixed valuation, and the income of the Dutch stock is payable in Holland. The report of the minister of finance, January 1st, 1822, made the whole debt of Russia to consist of the following sums:—1. The Dutch, 48,600,000 guilders; 2. the domestic, in silver roubles, 53 millions; 3. the domestic, in paper roubles, 296 millions. The fund destined for the liquidation of these debts is one million in silver roubles and five millions in paper—about in the ratio of one to fifty. Nearly ten million silver roubles are necessary for the payment of what is annually due on these stocks.

VI. *Dutch Stocks*. Although the public debt in Holland has been very great from the earliest times, yet, in consequence of the regular fulfilment of all obligations, and the multitude of wealthy capitalists in the country, the stocks have maintained a high credit, and, during the thirty-two years of tranquillity, from 1748 to 1780, they were in such demand, that, notwithstanding their low rate of interest (two and a half per cent.), they brought from eight to ten per cent. above their nominal value. But owing to the wars with England and France, the finances of the country were thrown into disorder; it is probable, indeed, that these wars only hastened a calamity which must, sooner or later, have fallen upon the people; for the deficit in the income was increasing every year after 1786, and the public debt, of course, was continually accumulating. The expenditures were multiplied by the oppression of France, and the deficit daily grew more enormous. Under the administration of Louis Bonaparte, in 1807, 1808, and 1809, loans of forty, thirty, and twenty million guilders, to cover the deficit, were obtained on tolerable conditions, as Louis Bonaparte maintained the credit of the state by opposing with firmness, on every occasion, the reductions of the public debt, which his brother proposed. When Napoleon united Holland with France in 1810, it was found that the national debt of this little kingdom amounted to the enormous sum of 1200 million guilders (about 480 million dollars). Napoleon commenced a system of reform in the financial department, by setting aside two thirds of the debt, as had already been done in France. The remaining third was to be registered in the great book of France, as a part of the general national debt, and, like the rest, to pay an interest of five per cent. This measure, however, was never carried into execution. After the establishment of the kingdom of the Netherlands, subsequent to the fall of Napoleon, the debt was newly organized, and, by the law of May 14th, 1814, was regulated by the following principles:—1. The two thirds of the debt abolished by Napoleon were again acknowledged, although his measure was, in a degree, sanctioned, by the division of the new debt into a real or active, and a nominal or dead one; the interest of the first (the third retained by Napoleon) was to be paid from January 1st, 1815; and the interest of the latter (the two thirds abolished by Napoleon) was to commence gradually; so that every year from four to five millions should be put on the same footing with the active debt, as to the payment of interest of the abolished debt.

All subsequent obligations were required to be presented, and for an advance of six per cent. in specie, were changed into new obligations, of which all were fixed at two and a half per cent.; in such a way, however, that two thirds of the new notes were assigned to the dead debt, which paid no interest, and only one third of the amount was transferred to the new debt, bearing interest from 1815. Charitable institutions, holders of life annuities, and some other classes, however, had some particular privileges. But the debts contracted during the French administration were put under less favorable conditions. These obligations, frequently increased by new loans, formed the Dutch stocks found in the money market, of which those that yielded an actual income, were sold before the Belgic revolution for forty-six to forty-seven per cent. Shares in the nominal debt are regarded like shares in a lottery, and stand at one quarter per cent., or even still lower (five eighths); this is sufficient evidence, how little the purchasers think of soon obtaining any income from them. In 1819, seventeen million guilders interest were to be paid. The sinking fund was fixed, in 1821, at 2,500,000 guilders annually. Besides these debts, which include those of Belgium, the government of Holland assumed the responsibility of paying a portion of the Russian-Dutch debt (of eighty-three million guilders), and 1,443,750 guilders were devoted every year to the discharge of the interest and gradual liquidation of the capital. These obligations belong to the unfunded debt, as does also the Austrian-Belgic debt of about six million guilders, and other obligations little known out of the country.

VII. *Neapolitan Stocks.* The Neapolitan finances, on the whole, have been subject to no little disorder; but, at the close of the last reign, measures were adopted for the punctual payment of the stipulated interest and *rentes*, even though fresh loans should be required. The occupation of the kingdom by Austrian troops added to the national debt upwards of nine million ducats (about 7,200,000 dollars). The French system of managing the public debt has been taken, to a considerable degree, as a pattern, the shares of the creditors being registered, and bought and sold in the same manner as in France. The yearly amount of income from the debt was estimated, January 1st, 1821, at 3,882,000 Neapolitan ducats (about 2,928,000 dollars). This income is five per cent. The Neapolitan stocks have hitherto found purchasers in the European markets at low rates.

VIII. *Spanish Stocks.* The history of the old debt of Spain is a chaos of confusion. It has been always loaded with arrears and unpaid interest. According to the statement of November 29th, 1820, only a part of the Spanish debt bears interest. The part which does not bear interest consists of unpaid pensions, annuities, and many other unpaid and floating debts, but principally of paper money. These were estimated in the above mentioned year at 7205 million reals, or about 345,840,000 dollars. The public obligations bearing interest, which consist partly of old debts, new loans, &c., amount to 6,814,780,363 reals, or about 327,109,457 million dollars, of which the yearly interest is estimated at 235,966,630 reals, or 11,326,390 dollars. A plan was adopted, during the constitutional government, for paying off a portion of the debt by the sale of the estates of monasteries, the property of the inquisition, and the public lands; but the restoration of the absolute monarchy in 1823, put a stop to its execution, and the loans made by the cortes were declared to be invalid. Great deficits have since taken place every year, and till this day new loans have been utterly insufficient to cover them. The stocks which are most commonly found in the market at present are:—1. The Dutch-Spanish obligations of 1807, created by means of the house of Hope & Co., each of which is for 1000 Dutch guilders with interest, payable annually. The interest of this loan of thirty million guilders, and of several of the other debts, has never been paid since the French invasion of 1808. 2. The stocks of the Laffitte loan of fifteen million dollars, which was negotiated in Paris. Each certificate is for one hundred dollars. A lottery ticket is connected with every one, by which the certificate gains a greater or less premium (from 18 dollars to 20,000) whenever its number is drawn. The obligations are to be paid within twenty years from 1825, agreeably to the regulations for the annual extinction of a portion, with the premiums belonging to them. 3. The certificates of the loan of 1821, negotiated by the house of Ardouin, Hubbard & Co., fixed at different sums in dollars, and with interest payable semi-annually in Paris and London. 4. The certificates of the national loan of 1821, which is connected with the last, or rather forms a part of it. Every certificate is for 150 dollars in specie, but the old obligations of the governments, as well as shares in stocks No. 1 and 3, and premium certificates, are received by the government in return for these new stocks, according to their market value. These new certificates were to bear five per cent. interest, paid annually at Madrid, Paris, or London, at the option of the holder.

IX. *Danish Stocks.* The obligations on account of the domestic loans, made for the sake of the liquidation and better regulation of the paper money, are scarcely found at all in foreign markets. But those that sprung from the loans of 1818 and 1819, in Hamburg, and from the English loan of 1821, have a wider circulation. The first loan of 1813 gave rise to obligations at five per cent. each, of the amount of 3000 marks, Hamburg banco (a mark banco is about 34½ cents), which were sold at par, because they involved a premium, in which every certificate gained, at least, 400 marks banco, in stocks bearing six per cent. interest, and under the most favorable circumstances, 200,000. After the drawing of the premiums, the five per cent. obligations of this description stood at 78—83; the six per cent. at 91—96. The loans of 1818 and 1819, in Hamburg, were concluded under similar conditions. The English loan of 1821 amounted to three million pounds sterling, and the obligations vary in amount from 100 to 1000 pounds sterling. All these loans are entitled to interest semi-annually, till all the capital is paid, provision being made for cancelling a portion of this capital annually. No loan could well rest on a firmer basis than the Danish. In regard to the premium notes, it is left with the government to repay the capital at pleasure. All the rest are gradually paid in full, as their numbers are drawn, and all the stipulations have hitherto been punctually fulfilled.

X. *Norwegian Stocks.* They arise from the loan of 2,700,000 marks, concluded in 1819, in Hamburg and Berlin, by the king of Sweden and by the Norwegian states, and consist of obligations, which vary from 3000 to 300 marks banco. The method adopted to repay the capital is, to re-purchase the certificates as long as they are below par. Another Norwegian loan at six per cent. was negotiated in 1822, at Hamburg. It amounted to 2,400,000 marks banco. It is to be entirely paid off in twenty-nine years, in semi-annual instalments. The payments have hitherto been regularly made; and this circumstance, together with the guarantee of the states, seems to have given to these loans a high degree of credit, although the guarantee given by the states, of their associated kingdom, Sweden, to the stocks of the Frege loan, has not secured to the creditors a regular payment. For this reason, *Swedish* certificates are not found in the money markets.

XI. *Stocks of the German Confederation.* Nearly all the states in this body have public debts; their notes, however, are scarcely ever seen in the markets of London, Amsterdam, Paris, Frankfort, and Berlin; they remain chiefly in the states where they originated, and are monopolized by the capitalists and institutions of those states. The certificates of the kingdom of Saxony enjoy the highest credit of all. Though the debts of this little territory amount to sixteen and a half million convention dollars (a Saxon dollar is about ninety-five and a half cents), the people believe the government to be so conscientious and trustworthy, that they dread rather than desire the repayment of their capital, which is in the hands of the state. From this cause the five per cents have risen to 110—111 per cent., and the three per cents to nearly 100; and the state has thus been enabled to exchange the former for four per cents. The new four per cents now stand at 104—105, and would stand still higher, if a small portion were not paid off semi-annually; the three per cents stand at 101, and the two per cents at 90. Next in credit to Saxony are the kingdoms of Würtemberg and Hanover, and the cities of Hamburg and Frankfort, whose four per cent. notes are all nearly at par, or even above it. Not far below these are the certificates of Bavaria, Baden, Mechlenburg and Hesse-Darmstadt; and it is a general rule that the credit of the German states is greater, and their certificates stand higher, in proportion to the smallness of the states. These certificates, however, are not proper subjects of comparison with those of the larger governments. In the smaller states, almost all debts are contracted on condition of being repaid within a limited time, and the measures adopted afford the creditors good reason for believing that the promises will be fulfilled.

XII. *United States Stocks.* In 1775, when hostilities commenced between the United colonies and Great Britain, the Americans had no treasury, nor any organized system, to direct their resources. Congress authorized the issuing of a paper currency, and loans were obtained from foreigners, and from persons within the country. In 1783, the debts of the U.

States, as far as they could be ascertained, amounted to $42,000,375, and the annual interest was computed at $2,415,956. No provision had been made for the payment of the interest, and there was no plan in operation to redeem the principal; the faith of the government was doubted, and the evidences of the public debt were reduced to about one eighth of their nominal value. The estimated amount of the debt, according to the report of the secretary of the treasury, in 1790, was $79,124,464. $25,000,000 of this were proposed to be assumed on account of the several states. $11,710,378 was the amount of the principal and interest of the foreign debt; $40,414,085 was the principal and interest of the liquidated part of the domestic debt. The unliquidated part, which consisted chiefly of continental bills of credit, was not ascertained, and was estimated at $2,000,000. In 1790, the public debt was funded. $600,000 were annually reserved from the duties on merchandise imported, and the tonnage of vessels, or so much thereof as might be appropriated from time to time for the support of the government of the U. States, and their common defence, and so much of the residue of the duties aforesaid as might be necessary was appropriated to the payment of interest on loans made in foreign countries, and also to the payment of interest on such further loans as should be obtained for discharging the arrears of interest thereupon, and the whole or any part of the principal thereof. The appropriations were to continue until these sums should be fully paid. The president was authorized to borrow $12,000,000 to discharge the arrears of interest, and the instalments of the principal of the foreign debt. The U. States reserved the right to reimburse any of the sums so borrowed within fifteen years after the same should have been lent. To provide for the domestic debt, a loan to its full amount was directed to be proposed. The sums subscribed were payable in the certificates issued for the domestic debt, according to their specie value, and computing the interest upon such as bore interest to the 31st of December, 1790, inclusively. The subscribers received two kinds of certificates, one for two thirds of the sum paid in the certificates just mentioned, bearing an interest of six per cent., payable quarter-yearly, and redeemable at pleasure, in payments not exceeding, in any one year, for principal and interest, eight dollars for each hundred mentioned in the certificate. This first stock was afterwards called *old six per cents*. The other certificate was for the remaining third, which, after 1800, was to bear interest, and be redeemable on the terms just mentioned. For such of the sums subscribed as were paid in the interest of the said domestic debt, or in the certificates issued in payment of interest, the subscriber received a certificate for a sum equal to that paid in, bearing three per cent. interest, payable quarter-yearly, and redeemable whenever provision should be made by law for the purpose. This was called *deferred six per cents*. The stocks thus created were transferable only on the books of the treasury, or on those of the commissioners of loans, upon which the credit of the same should exist at the time of the transfer, unless by special warrant from the secretary of the treasury. The interest was made payable where the credit of the stock should exist at the time of its becoming due. If not demanded before the expiration of a third quarter, it was afterwards demandable only at the treasury of the U. States. To provide for the debts of the respective states, a loan of $21,500,000 was authorized, to be paid in the evidences of debt which had been issued by the states. For four ninths of any sum thus subscribed, the subscriber received a certificate bearing six per cent. interest, and subject to the same conditions as those of the first sort mentioned under domestic debt; for two ninths, another certificate, bearing six per cent. interest after 1800, payable quarterly, and redeemable as above-mentioned, and for the remaining three ninths, a certificate bearing three per cent. interest, and redeemable when provision should be made by law for the purpose. Various stocks for small amounts were created in 1795, 1796, 1798. These were reimbursed in 1806, 1807 and 1808, with the exception of $80,000 transferred to the national debt. In 1803, the Louisiana six per cent. stock was created for the payment of the purchase of Louisiana from France. Certificates for $11,250,000 were issued, bearing an interest of six per cent. The principal was made reimbursable in four annual instalments, payable the first in 1818, the last in 1821. Besides this sum, claims of American citizens on the French government, to the amount of $3,500,000, were also assumed by the national government on account of the Louisiana purchase, and added to the national debt. Feb. 11, 1807, the government of the U. States proposed to the holders of six per cent. deferred and three per cent. stocks, to exchange the same for six per cent. stocks, redeemable at the pleasure of the government. This was done with a condition "that no single certificate should issue for a greater amount than $10,000, and that no reimbursement should be made, except for the whole amount of any such new certificate, nor till after six months, at least, previous notice of such intended reimbursement." The holders of three per cent. stock were to receive new certificates for sums equal to sixty-five per cent. of the principal of the stock, bearing an interest of six per cent. The amount of unredeemed and deferred six per cent. stock subscribed was $6,294,051, and the stock thus created was called *exchanged six per cents;* the three per cents, subscribed at sixty-five per cent., produced $1,859,850, which was called *converted six per cent. stock.* More *exchanged* stock was created in 1812, by the surrender of nearly 3,000,000 of the old and deferred six per cents. In 1812, additional stock was created by borrowing money to the amount of $8,134,700 at six per cent., reimbursable after twelve years from Jan. 1, 1813. In 1813, more six per cent. stock, to the amount of $26,607,959, was created by borrowing an additional amount, reimbursable after twelve years from Jan. 1, 1814. In 1814, six per cent. stock, to the amount of $15,954,619, was added, reimbursable after twelve years from December, 1814. Under acts of congress of the years 1812, 1813, 1814, and 1815, treasury notes were issued to the amount of $36,680,794, of which there had been paid off, by December, 1816, $32,980,794, leaving unpaid in January, 1817, $3,700,000. The whole amount of the debt remaining unpaid Jan. 1, 1817, was estimated at $112,107,862, of which $75,450,930 was contracted during the war; the remainder, contracted before the war, was $36,656,932. In March, 1817, congress passed an act to provide for the redemption of the public debt. By this, all acts making appropriations for the purchase or reimbursement of the principal, or for the payment of the interest of the funded debt, are repealed, and the annual sum of $10,000,000 is appropriated to the sinking fund, and a further sum of $9,000,000 is appropriated for that year. The act also provides that, after the year 1817, any sum in the treasury above the annual appropriations shall be appropriated to the sinking fund, with the exception of so much as will leave in the treasury at the end of the year the amount of $2,000,000. The debt now went on diminishing till 1821, when it stood at $89,987,427; but the purchase of Florida, in that year, for $5,000,000, increased it, so that it stood, in 1822, at $93,546,676. In March, 1821, five per cent. stocks, redeemable after January, 1835, were created to the amount of $4,735,296. In May, 1824, four and a half per cents to the amount of $1,739,524 were created, redeemable after January, 1832, and, in the same year, four and a half per cent. exchanged stocks were created to the amount of $4,454,727, redeemable after December, 1832 and 1833. In 1825, the public debt had been reduced to $83,788,432; in 1828, to $67,475,622; in 1830, to $48,565,405; in January, 1832, to $24,282,879 funded, and $39,355 unfunded.

XII. *South American Stocks.* The new S. American states, as Buenos Ayres, Chile, Colombia, several years ago, obtained loans in London. These have greatly depreciated, or have merely a nominal value.

Fraser's Magazine for January, 1832, contains an article entitled the Stock Exchange, the object of which is to show the enormous amount of capital drawn from England in nine years, beginning, say, with 1822, in the shape of loans and joint stock subscriptions. From the facts there presented, the following table has been prepared. The first column of figures shows the amount loaned; the second, the rate per cent. at which the loans were made; the third, the present value per cent.

		Loaned at	*Now worth*
Austrian, . . .	£2,500,000	not stated.	not stated.
Brazilian, . . .	3,200,000	75 per ct.	43 per ct.
Buenos Ayres, .	1,000,000	85 "	nominal.
Colombian, . .	2,000,000	84 "	13 per ct.
Colombian (second),	4,750,000	88½ "	13 *a* 14 do.
Chilian, ...	1,000,000	70 "	17 *a* 19 do.
Danish, ...	3,500,000	75 "	66½ per ct.
Greek, ...	800,000	59 "	22 *a* 24 do.
Greek (second) .	2,000,000	56½ "	22 per ct.
Guatemala, . .	1,428,571	73 "	nominal.
Mexican, . . .	3,200,000	58 "	29 per ct.
Mexican (second),	3,200,000	89¾ "	35 *a* 36 do.
Neapolitan, . .	2,500,000	92½ "	uncertain.
Portuguese, . .	1,500,000	87 "	49 *a* 50 do.
Peruvian, . . .	1,816,000	88, 82 & 78	12 per ct.
Prussian, . . .	5,000,000	70, 72½ & 75	99 *a* 100 do.
Prussian (second),	3,500,000	84 per ct.	99 *a* 100 do.
Russian (known),	3,500,000	83 "	99½ *a* 100 do.
Spanish (about) . or $31,000,000	6,500,000	54 & 68	14½ per ct.
Spanish (second),	1,500,000	30½ per ct.	14 per ct.
Total, . . .	£54,394,571		

In addition to the above, the writer enumerates twenty-seven joint-stock companies, in behalf of which £6,145,065 were "exported from the national treasury to distant climes, without the shadow of an equivalent."

It is impossible to give a complete view of all public stocks. We can here only give a general idea of those of the larger states, and chiefly of those which are now important in the commercial world. States have always labored to make their notes as easy to be obtained and used in remote countries, as at home; so that a capitalist in Prussia may lay out his money not only in all kinds of German stocks, but in those of France, Denmark, England, Spain, and even America; receive the interest of them with the same ease, and sell them again with the same convenience, as those of his own country. In London, Amsterdam, Paris, Frankfort, Berlin and Leipsic, stocks of all descriptions may be obtained, and the interest on them all paid. Thus a branch of trade has arisen, which, fifty years ago, was unknown; and one of the consequences of this has been, that stocks have come into competition, like other articles of commerce, and those of equal goodness and security can be exchanged at an equal price; so that a state, whose credit is good, may at any time create new stocks, or dispose of them whenever a profit can be made upon them. Hence, if the stocks of one state are higher than those of another, it may usually be attributed to one of the following causes: 1. that one state enjoys greater credit than another; 2. that the loans of one have been negotiated on better conditions than those of another, as regards the prospect of gain, premiums, the payment of the capital at a time specified, the facility of obtaining the interest, &c.; 3. that the buying and selling, or procuring the interest of foreign stocks, costs a certain per centage, which, in the case of domestic stocks, is saved. Under certain circumstances, therefore, the price of stocks may be viewed as a standard of the comparative credit of different states. In May, 1823, the five per cent. stocks of the following countries, created with similar conditions, sold at the following rates:—

	Per Cent.
1. the Saxon stocks,	at 140—150
2. those of England and Hamburg,	" 125—130
3. those of Hanover, Würtemberg, and other small German states,	" 98—100
4. the Prussian,	" 90
5. French,	" 86
6. Norwegian,	" 85
7. Danish,	" 81
8. Russian,	" 80
9. Spanish,	" 37 &c.

As the price of stocks is affected by various circumstances, even though the government punctually fulfils its obligations, speculators are in the habit of buying and selling with a view of turning these fluctuations to account. (See *Stock-jobbing*.)

Puck. (See *Mab*.)

Pudding Stone. (See *Sandstone*.)

Puddling Furnaces. (See *Iron*, vol. vii, p. 72.)

Puebla, La, or La Puebla de los Angeles; a state of the Mexican confederacy, formed of the Spanish intendancy of the same name, lying between lat. 16° and 20° 30′ N., and lon. 96° 40′ and 99° 30′ W.; bounded north by the states of Vera Cruz and Queretaro, south by that of Oaxaca and the Pacific ocean, and west by the state of Mexico. It is 322 miles in length from north to south, and 140 in breadth; square miles, 20,000. It is traversed by the cordilleras of Anahuac, and contains the lofty summits of Popocatepetl and Iztaccihuatl. The northern part is almost entirely formed of an elevated plateau, 6500 feet above the ocean, and fertile in corn and fruits; cotton and sugar also thrive here. Population of the state in 1793, 508,000; in 1803, 813,300. On the arrival of the Spaniards it was the seat of a powerful republic (Tlascala), which had maintained itself independent of the Mexican emperors. The capital of the state, of the same name, is in lat. 19° N., and is one of the handsomest cities of North America: the streets are broad, straight, and well paved; the houses large and well built; and there are numerous large squares. The church of Nuestra Señora de Guadalupe is one of the richest and most splendid in the country. Puebla contains sixty churches, twenty-two convents, and several literary seminaries and hospitals; its manufactories, particularly its potteries, are extensive; population, 67,000. The pyramid of Cholula is five miles distant from the city. Puebla was built by the Spaniards in 1533. (See *Mexico*.)

Pufendorf, Samuel, baron von, one of the first and greatest expounders of natural law, publicists, and historians of Germany, was born in 1632, near Chemnitz, in the Erzgebirge, in a village where his father was a preacher. After having studied at the school of Grimma, and at the universities of Leipsic and Jena, he applied himself to public law, making philosophical or natural law the foundation of his studies. Being unable to procure a situation in his native country, he accepted, in 1658, the place of tutor in the house of the Swedish ambassador at the Danish court, and repaired with his pupil to Copenhagen; but a war breaking out between Denmark and Sweden, he was arrested, with the whole family of the Swedish ambassador. In this situation, which continued for eight months, he employed himself in studying the works of Grotius and Hobbes on law and government. The result of his labors appeared at the Hague in 1660 (*Elementa Jurisprudentiæ universalis*). The learned elector of the palatinate, Charles Louis, to whom it was dedicated, was so much pleased with this work, that he founded for the author, in 1661, a professorship of the law of nature and nations, the first in Germany. Here he taught till 1670, when the king of Sweden, Charles XI, offered him the professorship of natural law in the new university at Lund. He there wrote his work on natural law (*De Jure Naturæ et Gentium*, Lund, 1672), which superseded the former, and is characterized by perspicuity, method, and sound reasoning; soon after appeared the smaller compendium, or rather abstract of the above work, *De Officio Hominis et Civis* (Lund, 1673), which has passed through innumerable editions, and been translated into several languages. Pufendorf, in these works, deviated still further than Grotius from the scholastic method of philosophizing, and, consequently, excited violent opposition. However different opinions may be respecting these works of Pufendorf, it is not to be denied that he made an epoch in the history of natural law. He had a more distinct conception than Grotius of a science, which, independently of positive law or theology, should determine the rules of right solely by the laws of reason. His law of nature was a philosophical morality, settling the mutual relations of justice between men, and which still remained dependent on the Christian morality. With Grotius, he laid the foundation of law in the social instinct, which is nearly allied to the Christian precept of love of our neighbor, and with Hobbes, he derived law from the state of fallen nature. Pufendorf also made an epoch in the German public law. While professor in Heidelberg, he wrote, at the suggestion of the elector, under the name of Severinus a Monzambano, the celebrated book, *De Statu Reipublicæ Germanicæ*, which he sent to his brother, then Swedish ambassador in Paris, to be printed. It represents Germany as a republican body, whose clumsily joined parts formed an anomalous whole. This book was violently attacked, and Pufendorf, who defended it with energy, did not think it advisable to avow himself as the author. He afterwards went to Stockholm, where he was appointed secretary of state, royal counsellor and historiographer. There he wrote, in Latin, the History of Sweden, from the campaign of Gustavus Adolphus in Germany, to the abdication of queen Christina (*De Rebus Suecicis*—1676), and the History of Charles Gustavus (*De Rebus a Carolo Gustavo gestis*—2 vols., fol., 1696), and, in German, his *Einleitung zur Geschichte der vornehmsten Reiche und Staaten* (1682, 2 vols.), subsequently continued by Œhlenschläger and translated by Martinière into French. These works so much increased his reputation, that, in 1686, he received from Frederic William, elector of Brandenburg, an invitation to Berlin as counsellor, historiographer and judge of the supreme court of judicature, with the charge to write the life of that prince, which he finished under the reign of his son, Frederic III. In 1690, he was made privy counsellor of the elector of Brandenburg, and, in 1694, was created baron by Charles XI, king of Sweden. He died at Berlin, in 1694.

Puffin (*puffinus*). These birds, which also bear the name of *petrel*, are completely aquatic, living constantly at sea, and scarcely ever seen on shore; they, however, fly well, and keep on the wing for a long time; they chiefly seek for their prey, which is exclusively fish, at twilight or in stormy days. They breed socially, forming their nest in the ground, which they excavate by means of the sharp nails of their feet. The female lays one egg. The young, when excluded from the shell, is covered with a long down. They are found in all the high latitudes, furnishing the wretched inhabitants of these frozen climates with food and clothing. Three species are found in America:—*P. cinereus* (petrel or puffin); bill more than two inches long, depressed at base, compressed where the point swells; tail cuneiform; tarsus two inches long; color, light cinereous; wings and tail blackish ash, beneath white; common on the banks of Newfoundland, but also found in all parts of the world: *P. anglorum* (shear-water petrel); bill an inch and three quarters long, very slender; tail rounded; wings reaching beyond its tip; color, glossy black, beneath pure white; inhabits the northern seas of both continents; rare in the U. States, but very common in the Hebrides: *P. obscurus* (dusky petrel); bill an inch and a quarter long, very slender; tail rounded; the wings reaching to its tip; tarsus little more than an inch long; color, glossy brownish black, beneath white. This species, which it is by no means easy to distinguish from the two others, inhabits the temperate and torrid zones, and is never found to the north; it is very rare in the U. States.

Pugatscheff, Jemeljan; the son of a Cossack, born at Simoweisk, a village on the Don, in 1726, played, for a short time, an important part in Russia. War and robbery were the employments of his youth, and he became the leader of a predatory band. He afterwards entered the Prussian service during the seven years' war; then joined the Austrians, served against the Turks, and was present at the siege of Bender (1770). Returning to his native country, he attempted to sow the seeds of rebellion among his countrymen, but was soon arrested and confined at Kasan. Having made his escape, he was joined by some restless spirits, and was encouraged, by his personal resemblance to the lately deceased emperor, Peter III, to attempt to pass himself off for that emperor. His adherents pretended that the corpse which had been exposed as Peter's was in fact that of a soldier resembling him; that the emperor had escaped in disguise, and had at last appeared in the midst of his faithful Cossacks, by whose support he expected to be restored to the throne. The insurrection began in the middle of August, 1773, when a manifesto was issued in the name of the pseudo-Peter. The number of his followers, which was at first only nine, had increased in September to 300. He was every where joined by his countrymen and the peasantry, to whom he promised deliverance from their oppressions. His force was increased by 500 deserters from the garrison of Jaizkai, and many Roskolnicks (q. v.), and he took several fortresses, practising the most shocking cruelties. His army now amounted to 16,000 men, and was gaining strength by the concourse of Bashkirs, Watiaks, Tartars, &c. He captured Kasan, the old capital of the empire, and passed the Volga. He was at length defeated, at the moment that Moscow was threatened, betrayed by his followers to Suwarroff, and, June 10, 1775, executed, together with the other rebel leaders, at Moscow—the only instance of capital punishment in the reign of Catharine. Thus ended this rebellion, which cost more than 100,000 lives.

Puget, Pierre, a celebrated French sculptor, architect, and painter, born at Marseilles in 1622, was at an early age placed with a ship-builder, but soon after went to Italy, and displayed such marks of talents as to attract the notice of Cortona (q. v.), who instructed him in painting. He returned to Marseilles in 1643; and there are several pictures from his pencil at Aix, Toulouse, and Marseilles, which are much admired. His design is correct, and his figures graceful, but his coloring is cold. In 1655, being obliged by his health to abandon painting, he thenceforward devoted himself to sculpture and architecture, in which he received no instruction. His success in these departments of art was complete. He lived some time at Genoa, where he executed numerous works in statuary and architecture, and, in 1669, was recalled to France by Colbert, as director of the ornaments of ships of war, in which capacity he was employed in carving figures, bass-reliefs, &c. But he soon returned to labors more worthy of his genius, and produced a great number of works in marble, which have gained for him the appellation of the Michael Angelo of France. Puget died at Marseilles in 1694.

Pugilism. (See *Gymnastics.*)

Puglia. (See *Apulia.*)

Pulawski, count Joseph; a distinguished Pole, who, after attempting in vain to restore the independence of his own country, entered the American service. Pulawski had followed the profession of the law, and, in 1768, was at the head of the patriots who formed the confederation of Bar. Eight noblemen only constituted the first assembly of that confederation, and of these three were the sons and one the nephew of Pulawski. (See *Poland.*) In 1771, at the head of a few accomplices, he seized the person of the king (see *Poniatowski*); but, the latter having procured his liberation, Pulawski was condemned to death, and obliged to save himself by flight. He soon after came to America, and offered his services to the U. States against the mother country. Being appointed brigadier-general in the American service, he served both in the northern and in the southern army. October 9, 1779, he was mortally wounded in the attack on Savannah, and died two days afterwards.

Pulci, Luigi, an Italian poet, born at Florence in 1431, was the youngest of three brothers distinguished for their talents and learning. Of the circumstances of his life we know nothing but that he lived in terms of intimacy with Lorenzo de' Medici and Politian. His epic poem, *Il Morgante Maggiore*, in which he relates the adventures and exploits of Rinaldo and the giant Morgante, is said to have been written at the suggestion of Lorenzo's mother, and to have been read, as an entertainment, at table. Pulci cannot bear a comparison with Ariosto and Tasso; he cannot be denied to possess fancy, but he wants taste and judgment. His mixture of the grave, lofty and sacred, with the mean and burlesque, which is offensive to modern taste, was in accordance with the spirit of his age. His style is rich in pure Tuscan modes of expression, but his versification is rude and clumsy. Lord Byron translated this work of Pulci's.—His brother *Bernardo* was the author of some elegies and short poems.—Another brother, *Luca*, wrote some heroic epistles, a pastoral romance (*Driadeo d'Amore*), and an epic romance, probably the first in Italian (*Il Ciriffo Calvaneo*).

Pulcinella. (See *Punchinello.*)

Pulley. (See *Mechanics.*)

Pulmonary Consumption, or Phthisis (from φθιω, to consume); a disease known by emaciation, debility, cough, hectic fever, and purulent expectoration. The causes which predispose to this disease are very numerous. The following are, however, the most general: hereditary disposition; particular formation of body, obvious by a long neck, prominent shoulders, and narrow chest; scrofulous diathesis, indicated by a fine clear skin, fair hair, delicate rosy complexion, large veins, thick upper lip, a weak voice, and great sensibility; certain diseases, such as syphilis, scrofula, the small-pox, and measles; employments exposing particular artificers to dust, such as needle-pointers, stone-cutters, millers, &c., or to the fumes of metals or minerals under a confined and unwholesome air; violent passions, exertions, or affections of the mind, as grief, disappointment, anxiety, or close application to study, without using proper exercise; frequent and excessive debaucheries, late watching, and drinking freely of strong liquors: great evacuations, as diarrhœa, diabetes, and the continuing to suckle too long under a debilitated state; and, lastly, the application of cold, either by too sudden a change of apparel, keeping on wet clothes, lying in damp beds, or exposing the body too suddenly to cool air, when heated by exercise; in short, by any thing that gives a considerable check to the perspiration. The more immediate or occasional causes of phthisis are, hæmoptysis, pneumonic inflammation proceeding to suppuration, catarrh, asthma, and tubercles, the last of which is by far the most general. The incipient symptoms usually vary with the cause of the disease; but when it arises from tubercles, it is usually thus marked: It begins with a short, dry cough, that at length becomes habitual, but from which nothing is spit up for some time, except a frothy mucus that seems to proceed from the fauces. The breathing is at the same time somewhat impeded, and upon the least bodily motion is much hurried: a sense of straitness, with oppression at the chest, is experienced: the body becomes gradually leaner, and great languor, with indolence, dejection of spirits, and loss of appetite, prevail. In this state the patient frequently continues a considerable length of time, during which he is, however, more readily affected than usual by slight colds; and upon one or other of these occasions, the cough becomes more troublesome and severe, particularly by night, and it is at length attended with an expectoration, which towards morning is more free and copious. By degrees the matter which is expectorated becomes more viscid and opaque, and now assumes a greenish color and purulent appearance, being on many occasions streaked with blood. In some cases, a more severe degree of hæmoptysis attends, and the patient spits up a considerable quantity of florid, frothy blood. The breathing at length becomes more difficult, and the emaciation and weakness go on increasing. With these the person begins to be sensible of pain in some part of the thorax, which, however, is usually felt at first under the sternum, particularly on coughing. At a more advanced period of the disease, a pain is sometimes felt on one side, and at times prevails in so high a degree, as to prevent the person from lying easily on that side; but it more frequently happens, that it is felt only on making a full inspiration, or coughing. Even where no pain is felt, it often happens that those who labor under phthisis cannot lie on one or other of their sides, without a fit of coughing being excited, or the difficulty of breathing being much increased. At the first commencement of the disease, the pulse is often natural, or perhaps is soft, small, and a little quicker than usual; but when the symptoms which have been enumerated have subsisted for any length of time, it then becomes full, hard, and frequent. At the same time the face flushes, particularly after eating, the palms of the hands and soles of the feet are affected with burning heat; the respiration is difficult and laborious; evening exacerbations become obvious, and by degrees the fever assumes the hectic form. This species of fever is evidently of the remittent kind, and has exacerbations twice every day. The first occurs usually about noon, and a slight remission ensues about five in the afternoon. This last is, however, soon succeeded by another exacerbation, which increases gradually until after midnight; but about two o'clock in the morning, a remission takes place, and this becomes more apparent as the morning advances. During the exacerbations, the patient is very sensible to any coolness of the air, and often complains of a sense of cold when his skin is, at the same time, preternaturally warm. Of these exacerbations, that of the evening is by far the most considerable. From the first appearance of the hectic symptoms, the urine is high colored, and deposits a copious branny red sediment. The appetite, however, is not greatly impaired; the tongue appears clean, the mouth is usually moist, and the thirst is inconsiderable. During the exacerbations, a florid, circumscribed redness appears on each cheek; but at other times the face is pale, and the countenance somewhat dejected. At the commencement of hectic fever, the belly is usually costive; but in the more advanced stages of it, a diarrhœa often comes on; and this continues to recur frequently during the remainder of the disease; colliquative sweats likewise break out, and these alternate with each other, and induce vast debility. In the last stage of the disease, the emaciation is so great, that the patient has the appearance of a walking skeleton; his countenance is altered, his cheeks are prominent, his eyes look hollow and languid, his hair falls off, his nails are of a livid color, and much incurvated, and his feet are affected with œdematous swellings. To the end of the disease, the senses remain entire, and the mind is confident and full of hope. Those who suffer under it are seldom apprehensive or aware of any danger; and persons laboring under its most advanced stage often flatter themselves with a speedy recovery, and form distant projects under that vain hope. Some days before death the extremities become cold. In some cases a delirium precedes that event, and continues until life is extinguished. The morbid appearance most frequently to be met with on the dissection of those who die of phthisis, is the existence of tubercles in the cellular substance of the lungs. These are small tumors, which have the appearance of indurated glands, are of different sizes, and are often found in clusters. Their firmness is usually in proportion to their size, and, when laid open in this state, they are of a white color, and of a consistence nearly approaching to cartilage. Although indolent at first, they at length become inflamed, and, lastly, form little abscesses or vomicæ, which, breaking and pouring their contents into the bronchia, give rise to a purulent expectoration, and thus lay the foundation of phthisis. Such tubercles or vomicæ are most usually situated at the upper and back part of the lungs; but, in some instances, they occupy the outer part, and then adhesions to the pleura are often formed. When the disease is partial, only about a fourth of the upper and posterior part of the lungs is usually found diseased; but, in some cases, life has been protracted till not one twentieth part of them appeared, on dissection, fit for performing their function. A singular observation, confirmed by the morbid collections of anatomists, is, that the left lobe is much oftener affected than the right. The diet, in this disorder, should be of a nutritious kind, but not heating, or difficult of digestion. Milk, especially that of the ass; farinaceous vegetables; acescent fruits; the different kinds of shell-fish; the lichen islandicus, boiled with milk, &c., are of this description. Some mode of gestation, regularly employed, particularly sailing, warm clothing, removal to a warm climate or to a pure and mild air, may materially concur in arresting the progress of the disease in its incipient stage. With regard to urgent symptoms, requiring palliation, the cough may be allayed by demulcents, but especially mild opiates, swallowed slowly; colliquative sweats by acids, particularly the mineral; diarrhœa by chalk and other astringents, but most effectually by small doses of opium.

PULO PINANG. (See *Prince of Wales's Island.*)

PULQUE, or **OCTLI**; a favorite drink of the Mexicans, extracted from the maguey, or *agave Mexicana*. At the moment of efflorescence, the flower-stalk is extirpated, and the juice destined to form the fruit flows into the cavity thus formed, and is taken out two or three times a day for four or five months. The sap in this state is called *aguamiel* (honey-water), and, when allowed to ferment about twelve or fifteen days, forms *madre pulque*, or mother of pulque. This is used as a leaven. A small quantity, being placed in a vessel of the aguamiel, produces a fermentation, and renders it pulque, in the best state for drinking, in twenty-four hours. It is a cool, refreshing drink, and its intoxicating qualities are slight.

PULSE (from the Latin *pulsus*, a beating, a blow); the motion of an artery, consisting of its alternate expansion and contraction, which, in practice, is considered as a beating. This motion is the strongest in the heart, which is the centre of the arterial system, and from it is propagated through all the minutest branches of the arteries. In those which lie immediately under the skin, it can be felt with the finger, as is the case with the radial artery, the pulsation of which is very perceptible at the wrist. (See *Blood*, and *Heart*.) The state of the pulse is, therefore, an indication of the action of the heart and the whole arterial system, and of the condition of the blood, and the physical functions in general. The circumstances to be attended to in the pulse are either the number of pulsations which take place in a given time, and the regularity or irregularity of their occurrence, or the character of each pulsation. In the former case, the pulse is said to be quick or slow, according to the number of pulsations in a given interval; regular or irregular, as they occur at equal or unequal intervals. In the latter case, it is strong or weak, hard or soft, full or small, &c. It is affected by the age, sex and temperament of the individual, and by accidental circumstances, as sleep, food, exercise, heat, &c. The pulse is most rapid in childhood, making from 100 to 110 beats in a minute, and is regular, and rather soft and small. In youth, it is much less rapid, making not far from ninety beats a minute. At this period, it is regular, strong, rather soft than hard, moderately full. In mature age, the number of beats is about seventy-five per minute, and the pulse is regular, strong, or moderate, fluctuating between hard and soft, between full and small. In old age, the number of beats sinks to sixty. The pulse is sometimes irregular, strong, but slow, hard, rather full than small. In the female sex, it is more rapid, softer and smaller than in the male. In the *sanguine* temperament (so called), it is quicker, fuller, softer; in the choleric, slower, harder, stronger; in the phlegmatic, slower, weaker, softer, fuller; in the melancholy, slow, hard and strong. A vegetable diet makes it slow, weak, full, soft; a meat diet, spices, spirituous liquors, make it quick and hard. In a pure, clear air, it is quick; in damp, impure air, slow and languid. Sudden agitation and violent passions make it rapid and irregular; joy makes it quick and strong; long-continued grief languid and soft. The pulse is, therefore, a highly important indication of the state of the system. A deviation from the regular pulse of an individual indicates a disordered state. When the irritability of the system is so heightened as to produce fever or inflammation, the pulse is accelerated. If the action of the nervous system is irregular, or unduly heightened, the pulse becomes frequent and irregular, as in the case of cramps and a diseased irritation in the abdomen, from worms, &c., and in hypochondriacal and hysterical persons. In case of mechanical obstructions to the circulation, as in dropsy of the pericardium, polypus in the heart, or in the great arteries, the pulse is irregular and interrupted. It is doubtful whether Hippocrates had any knowledge of the pulse. Soon after his time, however, physicians, especially those of the Alexandrian school, were attentive to it. Aretæus of Cappadocia explained the pulsation as a motion occasioned by a natural and involuntary extension of the warmth belonging to the heart and arteries, by which their own motion is occasioned; and Athenæus of Cilicia had given the same explanation before him. He describes the various kinds of pulse connected with different disorders. Galen wrote several works on the pulse. For several centuries after, the doctrine of pulsation remained much as he had left it, as was the case, indeed, with many branches of medical science. The demonstration of the circulation of the blood by Harvey, and of the irritability of the muscular fibre by Haller, threw new light on this subject. The feeling of the pulse is the principal examination which Chinese physicians make of the state of their patients, and they discriminate its different states with a subtilty approaching absurdity.

Pultawa, or **Poltawa**; a fortified town of Russia, on the river Worskla, capital of a government of the same name; lat. 49° 30′ N.; lon. 34° 14′ E.; 450 miles south-west of Moscow; population 9000. June 27, 1709, Peter the Great (see *Peter I*) defeated Charles XII (q. v.) before Pultawa. In commemoration of this victory, the Russians have erected a column in the city, and an obelisk on the field of battle.

Pulteney, William, earl of Bath, an English statesman, the political antagonist of sir Robert Walpole, was descended from an ancient family, and was born in 1682. He became a student of Christ-church, Oxford, and, after having travelled abroad, returned home to devote himself to politics. Being chosen a member of the house of commons, he joined the party of the whigs, in the latter years of the reign of Anne. Under George I, he was made secretary at war; but a dispute with sir Robert Walpole caused his removal to the ranks of the opposition, when he joined lord Bolingbroke in conducting an anti-ministerial journal called the *Craftsman*. In 1731, a duel with lord Hervey gave offence to the king, who removed Mr. Pulteney from the office of privy-counsellor, which he had hitherto held, and also from the commission of the peace. These and other marks of the displeasure of the court only served to increase the popularity of Pulteney, who, at length, succeeded in procuring the resignation of his rival, Walpole, in 1741. The party with which he had acted then came into power, and he was raised to the peerage by the title of *earl of Bath*. From that period, however, his popularity and influence entirely ceased. He died June 8, 1764.

Puma (*felis concolor et discolor*). This animal is also known under the names of *cougar*, *panther*, &c., and is the largest animal of the cat kind found in America. The puma is of a brownish-red color, with small patches of rather a deeper tint, which are only observable in certain lights, and disappear entirely as the animal advances in age. The belly is pale-reddish; the breast, inside of the thighs and legs, of a reddish-white, and the lower jaw and throat entirely white. The puma was formerly found in most parts of the American continent, and is still numerous in South America; in the U. States, the advance of population has rendered it scarce. It is a savage and destructive animal, though possessing all the timidity and caution of the cat kind. It can climb trees with great facility. In the day time, it is seldom seen, the night being the time it selects for committing its depredations. Although it generally confines its attacks to the smaller quadrupeds, it will sometimes assail those of large size and strength, and even man himself. The puma is said to be readily tamed, and may even be rendered docile and obedient. When domesticated, its manners closely resemble those of the common cat, having the same fondness of being caressed, and expressing its satisfaction by the same kind of gentle purring. Mr. Kean, the tragedian, possessed an individual of this species, which was so tame as to follow him about like a dog. It should, however, be noticed that docility and submission in the cat kind are only apparent; man has never been able to subject them as he has other animals. Even down to the domestic cat, there is no one of them that can bear to be thwarted; and they also manifest their native ferocity on the slightest opposition to their desires or caprices, and, unlike the dog, never appear to entertain a personal attachment to their master. (See *Cat*.)

Pumice. (See *Pitchstone*.)

Pump; a contrivance for raising fluids by atmospheric pressure. (See *Hydraulics*, and *Air*.) The operation and construction of the air-pump are explained in a separate article. The simplest and most common pump is the ordinary lift, or sucking, or household pump. It is of great antiquity, its invention being ascribed to Ctesebes of Alexandria, about 120 B. C. It consists of a hollow tube descending to a reservoir of water, and containing an air-tight piston (box), attached by its rod to a lever (the handle or brake of the pump). Another stationary box is inserted in the tube below the movable one, and both are furnished with valves, or clappers, opening upward. When the pump is full of water, every stroke of the handle raises the movable box, together with the column of water above it. When the handle is lifted, the box is pushed further down into the water, while its valve opens to allow the water to pass through. The valve then shuts, and the second stroke of the pump raises another column of water to the spout. As the action of this pump depends upon the pressure of the atmosphere, water cannot be raised by it from a depth of more than thirty-four feet below the upper valve; and, in practice, a much shorter limit is commonly assigned.—*Forcing pump.* The forcing pump differs from the common sucking pump just described, in having a solid piston, without a valve, and the spout, or discharging orifice, placed below the piston. When the piston is raised, the lower valve of the pump rises and admits the water from below, as in the common pump; but when the piston is depressed, the water is thrown out through a spout in the side, which has a valve opening outward. In a forcing pump, the water cannot be brought from a depth of more than thirty-four feet below the piston; but it can afterwards be sent up to any height desired in a pipe, because the pressure communicated by the downward stroke of the piston is not dependent on the pressure of the atmosphere, but on the direct force applied to the piston. These two contrivances are sometimes combined in the same machine, as in Delahire's pump, which is a lift and force pump, raising an equal quantity of water by its up and down stroke. The fire-engine (q. v.) consists of two forcing pumps, working into one common air-vessel, placed between them, and from which the spouting pipe for directing the water proceeds. The chain pump used in the navy is an upright barrel, through which leathers strung on a chain are drawn by means of wheels or drums in constant succession, carrying the water in a continual stream before them. They are employed only when a large quantity of water is to be raised, and must be worked rapidly to produce any effect.

Pumpernickel; a coarse, heavy, brown bread, made, in Westphalia, of unbolted rye. It is baked in large loaves, sometimes weighing sixty pounds. The following account of the derivation of the word is given:—A French traveller in Westphalia, on asking for bread, was presented with some of this kind, on which he observed that such stuff was *bon pour nickel* (good for Nickel, i. e. either his horse or his servant)—whence it came to be called *pompernickel*, or *pumpernickel*. The story is obviously made to fit the case. In fact, it is called by the inhabitants *grobes brot*, the former name being only used by foreigners.

Pumpkin, or **Pompion** (*cucurbita pepo*); a species of gourd, or squash, distinguished from most varieties of the latter by the rounded form of the fruit, which sometimes grows to an enormous size. It has hispid, branching and prostrate stems, which, in a good soil, will cover an eighth part of an acre. The fruit is esteemed inferior to most varieties of the squash, but, notwithstanding, is very commonly cultivated, both in Europe and America.

Pun; a play upon words, the wit of which depends on a resemblance between two words of different and perhaps contrary significations, or on the use of the same word in different senses; as in the well-known story of the man who, being requested to make a pun, asked for a subject, and was told to take the king, upon which he replied that the king was no subject. The Greeks and Romans sometimes used puns, even in serious discourses; but the moderns restrict them to light conversation, devices, symbols, rebuses, mottoes, &c.

Punch. (See *Punchinello*, and *Puppet Shows*.)

Puncheon; a little block or piece of steel, on one end whereof is some figure, letter, or mark, engraved either in *creux* or *relievo*, impressions of which are taken on metal or some other matter, by striking it with a hammer on the end not engraved. There are various kinds of these puncheons used in the mechanical arts; such, for instance, are those of goldsmiths, cutlers, pewterers, &c.

Punchinello, or **Punch** (from *pulcinella*); an Italian mask. The abbate Galiani derives the name from a misshapen, but humorous peasant from Sorento, who had received it (about the middle of the seventeenth century) from his bringing chickens (*pulcinelli*) to market in Naples, and who, after his death, was brought upon the theatre *San Carlo* for the amusement of the people, to whom he was well known. According to another account, a company of actors, which went to Acerra at the time of the vintage, was attacked by the peasants (with whom the vintage is a season of festivity), with a sally of jokes and gibes, in which a certain Puccio d'Aniello among the peasants attracted notice by his comical humor and grotesque appearance, being hunched before and behind. The players had to yield to him; and, when the contest was over, they determined to take advantage of the talent of Puccio d'Aniello, and persuaded him to join their company. He appeared on the stage in a white robe, and large, full shirt, with long hair, and soon became such a favorite of the Neapolitans that his mask was retained after his death; and his successor, to resemble him the more, chose a mask with a long black nose. From his name was formed, according to Neapolitan custom, *Pulcinella*. Perhaps, however, this mask was only a modification of an older one, which some have derived from the ancient *Atellanæ* (q. v.), and have thought that they discovered the grotesque figure of Punch on ancient vases. This mask is still the delight of the Neapolitans. The dress, at present, consists of wide drawers of white woollen, a large upper garment, of the same material, with wide sleeves, fastened with a black leather belt, or hair-cord. This upper garment is sprinkled over with hearts of red cloth, and it is trimmed round the bottom with a fringe. Around his neck Pulcinella wears a linen ruffle; on his head a white woollen cap, with its long point terminating in red tuft; three fourths of the face are covered with a black mask; the nose is curved and pointed, like a bird's beak. This mask speaks the dialect of the peasants, and figures, not merely in the theatre, but at all the popular festivals in Naples, especially during the carnival. (See *Mask*, and *Harlequin*.)

Punctuation, or **Interpunction**; the art of employing certain signs, by means of which the parts of a discourse are connected or separated, as the sense requires, and the elevation, depression or suspension of the voice indicated (from *interpungere*, to point). Punctuation serves both to render the meaning intelligible, and to aid the oral delivery. The system of punctuation is peculiar to the modern languages of Europe. The Eastern languages have signs to regulate the tones, but they have no punctuation. The Romans were, indeed, acquainted with the term (Cic., *De Oratore*, iii, 44 and 46, and Seneca, *Ep.*, 40), but with them it had a totally different signification. Their points, as well as those of the Greeks, were almost entirely oratorical, i. e. confined to the delivery and pronunciation of the words; and there were often no points, or, at most, only one at the end of a sentence; or pauses were indicated by breaking up the matter into lines or paragraphs (*versus*, *στιχοι*.) Modern punctuation, which is, for the most part, grammatical, is of a later origin, and the invention has been attributed to the Alexandrian grammarian Aristophanes, after whom it was improved by succeeding grammarians; but it was so entirely lost in the time of Charlemagne, that he found it necessary to have it restored by Warnefried and Alcuin. It consisted, at first, of only one point, used in three ways (*στιγμη*; hence, in diplomatics, *stigmeology*, the art of punctuation), and sometimes of a stroke, both being formed in several different ways. But, as no particular rules were followed in the use of these signs, punctuation was exceedingly uncertain until the end of the fifteenth century, when the learned Venetian printers, the Manutii (q. v.), increased the number of the signs, and established some fixed rules for their application. These were so generally adopted, that we may consider them as the inventors of the present method of punctuation; and, although modern grammarians have introduced some improvements, nothing but some particular rules have been added since that time. (See *Hebrew Language*, and *Manuscripts*.)

Pundit. (See *Pandit*.)

Punic (originally *Phœnician*, from *Pœni*, Phœnicians); Carthaginian, because Carthage was a Phœnician colony.—*Punic wars*; wars between Rome and Carthage. (See those articles, and *Hannibal*.)—*Punic faith* (*fides Punica*); among the Romans, a proverbial expression for faithlessness.

Pupa. (See *Papilio*, and *Insects*.)

Pupil. (See *Eye*.)

Puppet Shows. One of the most common classes of puppets are called, in French, *marionettes* (from *morio*, fool, buffoon, as Frisch supposes). These are images of the human figure moved by wires or threads on a stage, and made to perform little dramas. In the common street performance of Punch and Judy, however, the performer put his fingers in the figures. Puppet shows were common among the Greeks (who called them *νευροσπαστα*), from whom the Romans received them. Xenophon, Aristotle, Gellius, Horace, and others, mention them. Such exhibitions, which are so pleasing to children and the uneducated, naturally passed through various degrees of perfection in different ages, and even now, exhibitions of puppets are common in some countries, which display great mechanical ingenuity, while the poor hand-organ boy in the street still turns his instrument, and gives to one or two figures on a board before him a few simple motions with his foot. Clocks for the peasants often display movable puppets, and it is not unfrequent in Germany to find on ancient town clocks puppets which move whenever the clock strikes. In 1674, there was a puppet opera at Paris, which met with great applause. In several large cities of Italy, puppet shows are performed at present (e. g. at Milan, in the *Teatro Girolamo* which is visited by the better classes). In Germany, also, excellent puppet shows are sometimes seen, but they are there hardly ever stationary, and are not by any means so much patronised as in Italy. As itinerary puppet shows have often given cause to scandal, several governments do not allow them but by special license (e. g. those of Prussia and Denmark). The censorship, which limits their sphere, often does much injury to their effect, as the manager of the puppet show is thus precluded from availing himself of the momentary inspiration of his muse, when he assists the performance by his voice, as is always the case in the ordinary puppet shows. For more particulars, see Beckmann's interesting *History of Inventions and Discoveries*. (See, also, *Punchinello*, and *Automaton*.)

Puranas. (See *Indian Literature*, vol. vi, p. 563.)

Purcell, Henry, an English musical composer, was the son of a musician of the chapel royal, who, dying in 1664, left him an orphan in his sixth year. He was admitted, at an early age, a chorister in the king's chapel, where he studied music under captain Cook and his successor, Pelham Humphrey, and afterwards under doctor Blow. In 1676, when only eighteen years old, he was made organist to

Westminster abbey, and six years afterwards, at the chapel royal, St. James's. From this period his fame seems to have increased rapidly, his anthems and church music in general being popular in all the cathedrals of the kingdom; nor were his compositions for the stage and music-room less successful. His genius embraced every species of composition with equal facility; and with respect to chamber music, all prior productions seem to have been at once totally superseded. Of his numerous compositions, his celebrated *Te Deum* and *Jubilate* appear to have been composed for the celebration of St. Cecilia's day, 1694. Of his instrumental music, a collection was published two years after his decease, containing airs in four parts, for two violins, tenor, and bass. Many of his songs were published after his death, under the title of *Orpheus Britannicus*. *Ye twice ten hundred Deities*, contained in this collection, is considered the finest piece of recitative in the language; while his music in King Arthur has maintained its popularity undiminished above a century. In 1695, the year of his death, he set to music Bonduca, and the Prophetess, an opera altered by Dryden from Beaumont and Fletcher; and he was the author of a vast variety of catches, rounds, glees, &c., not less remarkable for their melody than for their spirit, humor, and originality. He died in 1695.

Purchas, Samuel, an English divine, was born in 1577, at Thaxtead, in Essex, and educated at Cambridge. His principal work was entitled Purchas his Pilgrimages, or Relations of the World (5 vols., folio), which, with Hakluyt's Voyages, led the way to other collections of the same kind, and have been much valued and esteemed. The first volume was published in 1614; but the fourth edition of it, in 1626, contains numerous important additions. The four last volumes appeared in 1625. He also wrote Microcosmos, or the History of Man (8vo.); the King's Tower and Triumphal Arch of London. Mr. Purchas was rector of St. Martin's in Ludgate, and chaplain to Abbot, archbishop of Canterbury. He died in London, in 1628.

Purchase, in law; the acquiring of land with money, by deed or agreement, and not by descent or right of inheritance. *Purchase* is also a name given to any sort of mechanical power employed in raising or removing heavy bodies.

Purgatory, according to the dogma of the Roman Catholic church; a place of purification, in which, after death, those souls are cleansed, which are not sufficiently pure to enjoy the happiness of heaven. The council of Trent confirmed this doctrine, as sanctioned by Holy Scripture and tradition. The Protestants and the Greek church do not receive it. The passages of Scripture on which this article of faith is founded are, Revelations xxi, 27; 2 Maccabees xii, 38; Matthew xxv; Luke xii, 58; and 1 Corinthians iii, 2. Origen and Augustine, among the fathers, have been most full upon this point, upon which later Catholic theologians dwelt with still more minuteness. They teach that it is situated on the borders of the infernal pit; that a spark of its fires causes more suffering than any bodily pain; that every soul is purified in it, the members which have sinned being burned in its flames; and that, by masses for the deceased, their sufferings may be mitigated, and the time of their punishment shortened. The origin of this notion is to be traced to the doctrine of Plato, that there was a state of purification after death, which was introduced by the fathers of the church, particularly Clement (q. v.) of Alexandria, into the Christian system. Gregory the Great gave to this article a further extension, and employed it for the profit of the church. The council of Florence (1439) was the first in which the doctrine of purgatory was mentioned; the monstrous perversions which it had suffered in the hands of the monks, made it a prominent object of attack to the Protestants.

Purgatory [written by a German Catholic]. The doctrine of a state of future purification was closely connected by the ancients with that of the transmigration of souls, which, as it first prevailed among the Egyptians, was nothing more than a symbolical representation of the immortality of the soul. Succeeding philosophers made use of this doctrine of transmigration, to deter rude tribes from sin, by connecting their future condition with that of the various species of animals, which was well fitted to strike unreflecting natures. It was afterwards unhappily chosen to indicate the mode of the purification of the soul and its preparation for the joys of heaven. Plato did more than is usually believed to develope this doctrine. Such a middle state is consistent with reason, since there are men who, at death, are not deserving of the joys of heaven, nor of the punishments of hell; and the doctrine accords with the spirit of the Christian revelation, which represents the holiness of God, and declares that without holiness no one can see, i. e. be united with him (*Hebrews* xii), and describes the purity which is required for admission to his presence (*Revelations* xxi, 27). The Jews had this doctrine. Judas the Maccabee caused prayers and victims to be offered for the warriors who had fallen in sin, that their sins might be pardoned, and they obtain the reward promised to those who die in piety (2 *Maccabees* xii). Christ confirmed this doctrine, when he (*Matthew* xii, 31, 32) spoke of the sins which were forgiven neither in this world nor in the next, and thus implied that such a forgiveness was in general attainable in another life. Christianity is far from pronouncing the severe doctrine, that eternal damnation is the portion of all Christians who have incurred the slightest sin. John (1 *John* v, 16, 17) says expressly that all unrighteousness is sin, but not all mortal sin. In what way the purification of the less guilty is to take place, is not known; and the church has never acknowledged the notions of physical pain which many have on this subject. If brotherly love bids us pray for the good of our fellow men (*James* v, 16), should it not impel us to pray for those of our brethren who may have so lived on earth as to be excluded from perfect happiness? It is impossible to prove that such prayers are wholly ineffectual. That the Jewish church prayed for the dead, appears from the passage in Maccabees above referred to. And in the oldest documents of Christian antiquity, we find this prayer as something common and unquestioned. Not only is it clearly proved to have existed from private accounts, but in all liturgies, which contain the general belief of the churches, this prayer for the dead appears. The fathers of the church were always of this opinion. There is certainly something consoling in the thought, that we may be of assistance to our departed friends; this feeling was expressed by the Romans in the wish, *Sit tibi terra levis!* The Catholic faith considers as one body, both those who are struggling here and those who exist in another life. Love unites all, and love teaches the pilgrims on earth to pray for the dead not yet made perfect. No one acquainted with the history of the sale of indulgences, can doubt that the views of future purification and of prayers for the dead, have been shamefully perverted for the purpose of gain. The council of Trent, therefore, while it maintained the decree *de purgatorio*, passed at its twenty-fifth session, added the following ordinance, but did not prescribe it as a point of faith: "Since the holy Catholic church, instructed by the Holy Spirit, and by the Holy Scriptures, and by the primitive traditions transmitted from the fathers of the church, through synods and councils, has taught that there is a place of purification, and that the souls confined there are aided by the prayers of the faithful, and especially by the offering of the sacrament of the altar, the council commands the bishops to take care that the doctrine of a place of purification is taught and preached as it has been handed down from holy fathers and councils. The preachers shall not speak to the people of the more difficult and subtle questions, which edify not, and which, for the most part, do not contribute to piety; likewise, they shall not allow that which is doubtful, or probably false, to be treated of and spread abroad. Whatever is dictated merely by curiosity or superstition, or is connected with shameful gain, they shall forbid as wickedness, as offensive to true believers."

PURITANS, in the English church; a sect who professed to follow the pure Word of God, in opposition to traditions, human constitutions, and other authorities. In the reign of queen Elizabeth, the Protestants were divided into two parties, those who were in favor of adhering to the liturgy established in the reign of Edward, and those who wished to introduce a simpler, and, as they considered it, a purer form of church government and worship. The latter were termed *Puritans*, and many of the distinguished clergy favored these views. The queen, however, and the majority of the clergy, preferred the Episcopal form of government, and were attached to many forms and ceremonies upon which the Puritans looked with aversion. The rigorous measures followed by the dominant party to compel conformity, only served to alienate the Puritanical party, and to push them into more decided opposition to the ceremonials of divine worship. In 1566, the Puritans resolved that duty required them to break off from the church, and assemble, as they best could, by themselves, to worship God in their own way; they also laid aside the English liturgy, and adopted the Geneva service-book. They objected further to the hierarchy, as not authorized by Scripture, to kneeling at the sacraments, using the sign of the cross in baptism, bowing at the name of Jesus, wearing the surplice and other vestments in divine service, &c. In point of doctrine there was as yet no difference between the Pu ritans and Conformists; the former, however, as was natural for a persecuted party, maintained that every man had a natural right to judge for himself, without being subject to the laws of the civil magistrate, or the decrees of councils, churches, or synods. Towards the end of Elizabeth's reign, a party arose which were first for softening, and then for overthrowing, the received opinions concerning predestination, perseverance, free will, effectual grace, and the extent of Christ's redemption. The clergy of the church began to lean towards Arminianism, while the Puritans adhered rigorously to the system of Calvin, and all Calvinists, whether Episcopal or Presbyterian, were called *doctrinal Puritans*. The name was also applied to all who were remarkably strict in their morals, and severe in manners. Elizabeth treated the Puritans with great rigor during the whole of her reign; besides the ordinary courts of the bishops, she erected the court of high-commission, which suspended and deprived the refractory of their livings, by the determination of three commissioners, founded upon the canon law; before this court the prisoner was obliged to answer questions put to him, under oath; if he refused to swear, he was imprisoned for contempt, and if he took the oath, he was convicted upon his own confession. During the reign of James I, from whom the Puritans had expected more indulgence, they were treated with greater severity, and many of them left the kingdom and retired to Holland, whence they emigrated to America in 1620. (See *Plymouth*.) All were looked upon by James and the court as *Puritans*, who opposed the arbitrary maxims of his government; and these were called *Puritans* in state, who, uniting with the *church* Puritans, in opposition to the tyrannical principles of the Stuart dynasty, formed a majority in the nation. The success of the first emigrators to America, who established the colony of New Plymouth, induced great numbers of Puritans to turn to the same quarter for relief, and the new colony of Massachusetts Bay was founded by them in 1629. (See *New England*.) The colony of New Haven was also founded by Puritans, who fled from the persecutions of Laud, and the oppressions of the star chamber and the high-commission courts. Though there were shades of difference in these fugitives to America, they agreed in most points of doctrine and discipline, and most of their descendants in New England, of which they compose the principal part of the population, still cherish with fondness the maxims and the memory of their Puritan fathers. (See *Independents*.) The Puritans were afterwards prevented from retiring to America, and many of them removed into Holland, while others remained at home, and finally pulled down the throne and the altar, which long persecutions had rendered so odious to them (See *Cromwell*, *Hampden*, *Pym*, &c.) It was the union of the three kinds of Puritans above-mentioned, which gave the parliament the victory in the civil war which followed. (See *Charles I*.) The Presbyterian party was at first the most powerful, but the Independents, among whom were Cromwell, Milton, &c., finally acquired the ascendency; and it was this party, most of whom were republicans in politics as well as in church discipline, that beheaded the king and abolished royalty. After the restoration of Charles II (q. v.), the act of uniformity (1662) excluded from the communion of the church all who refused to observe the rites and subscribe the doctrines of the church of England; and from that time the name of *non-conformists* was applied to such recusants, as, for instance, Presbyterians, Independents, Quakers, &c. (See *Nonconformists*, and *England*, *Church of*.) For a complete history of the Puritans, the reader may consult Neal's History of the Puritans (4 vols., 8vo., 1732—38; new ed. 5 vols., 1797).

Purple. The color to which the ancients applied the name *purple*, was either dark, or violet and rose colored, and was one of the most costly dyes with which they were acquainted. They obtained their purple dyes partly from plants, and partly from several kinds of shell fish, as the *buccinum* (a species of muscle), and the *purpura*, or purple fish. In modern times, a similar purple matter has been found in several other shell fish. It is a viscous juice, contained in a little pouch or bag, lying generally between the heart and liver. The color of the juice varies, being in some purplish red, in others pale yellow or orange colored. Réaumur found that the juice taken from the *buccinum*, on being applied to linen, changed, in the course of a few seconds, from yellow to green, blue, and finally to purplish red. The juice of the *sea-snail*, found by the Spaniards in Peru, and used for dyeing, presents similar phenomena. Cochineal is used for purple dyes by the moderns, and has the advantage that it strikes equally well on silks and woollen stuffs; while the ancients used their purple only on cotton and woollen. The ancients attributed the invention of purple to the Phœnicians. The story of its having been discovered by a dog's biting a purple fish, and thus staining his mouth, is well known. The purple fish was found not only on the Phœnician coasts, but in all other parts of the Mediterranean, so that the use of it in dyeing came to be common with other nations; but the Phœnicians excelled in the beauty and permanence of their coloring. The Tyrians excelled particularly in the bright red and violet shade. They dyed the finest wools of this color, usually twice, and then gave an artificial brilliancy to the stuff.

Purple Grackle. (See *Blackbird.*)

Purple of Cassius. (See *Tin.*)

Purse, among the Turks; the sum of $500, so called because the treasure in the seraglio is kept in leathern purses of this value.

Purslane (*portulacea oleracea*); a common and insignificant weed, said to have come originally from India, but now almost universally diffused through the civilized world. The stems divide from the base into several prostrate branches, which are clothed with sessile, smooth, and wedge-shaped leaves; the flowers are small, yellow, and axillary. The whole plant is succulent. Formerly it was cultivated as a pot-herb, for salads, garnishings and pickling, and it is still sometimes employed for those purposes.

Pursuivant. (See *Poursuivant.*)

Puteoli; the ancient name for Pozzuoli. (See *Naples.*)

Putnam, Israel, a distinguished soldier in the French and English wars, and subsequently in that of the revolution, was born of English parents, at Salem, in the then province of Massachusetts, Jan. 7, 1718. Being intended for a farmer, he received only a common education. He had a strong mind, vigorous constitution, great bodily strength, enterprise and activity, excelled in athletic exercises, and, while a stripling, was ambitious of performing the full labor of manhood. He married very young, and removed, in 1739, to Pomfret, in Connecticut, where he had purchased a tract of land. During his residence there, his flocks and those of his neighbors being terribly thinned by a monstrous she-wolf, Putnam, with a few associates, traced the ferocious animal to a deep cavern in a rock. Into this he crept alone, with a torch in one hand and a musket in the other, and, at the utmost personal risk, destroyed the creature. When the war of 1755 broke out between France and England, he was appointed, at the age of thirty-seven, commander of a company, enlisted the necessary number of recruits from the young men in his vicinity, and joined the army then commencing the campaign near Crown Point. His services as a partisan officer were unremitting and great, and caused him to be promoted, in 1757, to the rank of major, by the legislature of Connecticut. In 1758, he fell into an Indian ambuscade, and was taken prisoner, when returning to Fort Edward from an expedition to watch the enemy's movements near Ticonderoga. The Indians were about to burn him to death, having already tied him to a tree and set fire to a circle of combustibles around him, when he was rescued by the interposition of their leader, Molang, a famous French partisan officer. He was then carried to Ticonderoga, where he underwent an examination before the marquis de Montcalm, who ordered him to Montreal. There he found several fellow prisoners, among whom was colonel Peter Schuyler, who immediately visited, and found him almost destitute of clothing, and dreadfully wounded and bruised. The colonel supplied him with money, and, having clothed himself in a decent garb, he was immediately treated with the respect due to his rank. An exchange of prisoners procured Putnam his liberty. He resumed his military duties, and, having previously been appointed a lieutenant-colonel, rendered especial service at the siege of Montreal by the British, in 1760. In 1762, after war had been declared between England and Spain, he accompanied the expedition, under lord Albemarle, against the Havana. In 1764, having been appointed colonel, he marched, at the head of a regiment, with general Bradstreet, against the savages of the western frontier. On his return from this expedition, which resulted in a treaty between the contending parties, he betook himself, once more, to a country life, filled several offices in his native town, and represented it in the general assembly. In 1770, he went, with general Lyman and some others, to explore a grant of land on the Mississippi. General Lyman, as we have already stated in our sketch of his life, formed an establishment and died there; but Putnam returned, after having made some improvements on his tract. When hostilities commenced between England and the colonies (April 18, 1775), Putnam received the intelligence as he was ploughing in the middle of a field; he left his plough there, unyoked his team, and, without changing his clothes, set off for the scene of action. Finding the British shut up and closely invested with a sufficient force in Boston, he returned to Connecticut, levied a regiment under colonial authority, and marched to Cambridge. His colony now appointed him a major-general on the provincial staff, and congress soon after confirmed to him the same rank on the continental. About this time the British offered him the rank of a major-general in his majesty's army, with a pecuniary remuneration for his treason; but the temptation could not influence him. In the several preparatory operations for the battle of Bunker's hill, he took an active part. After the commencement of the retreat, at the battle of Bunker's hill, Putnam arrived on the field with a reinforcement, and performed every thing to be expected from a brave and experienced officer: the enemy pursued the retreating Americans to Winter hill, but Putnam halted there, and drove them back, under cover of their ships. On the evacuation of Boston (March 17, 1776), the greater part of the forces were despatched to New York, and Putnam was, some time after, sent thither to take upon him the command. After the disastrous action on Long Island, and general Washington's masterly retreat from thence, Putnam was nominated to the command of the right grand division of the army. He served some time in the vicinity of New York, and was sent to the western side of the Hudson, and, shortly after, to superintend the fortifications of Philadelphia. After the battles of Trenton and Princeton, he was posted at Princeton, where he continued till the ensuing spring, with a very inferior force, guarding a considerable extent of frontier, curtailing and harassing the enemy, without sustaining the least disaster. During his stay at Princeton, by attacking the foraging parties of the enemy and assemblages of the disaffected who infested his vicinity, he captured nearly a thousand prisoners. In the spring of 1777, he was appointed to the command of a separate army in the highlands of New York. There was no regular enemy in this neighborhood, but the country around was filled with tories, and a species of banditti, called *cow-boys*, who committed shocking depredations. Many of the tories clandestinely traversed the country, with messages from one British army to another, and even on recruiting expeditions for the royal service. One of them, a lieutenant in the new tory levies, was detected in the American camp, and reclaimed by governor Tryon, his commander, with threats of vengeance in case of his punishment. He received this laconic answer from general Putnam: "Sir, Nathan Palmer, a lieutenant in your king's service, was taken in my camp as a spy; he was tried as a spy; he was condemned as a spy; and you may rest assured, sir, he shall be hanged as a spy... P. S. Afternoon. He is hanged." After the capture of Fort Montgomery, Putnam selected West Point as the best calculated site for a fortress to protect the river. The reputation it afterwards attained evinced the judiciousness of this selection. After the battle of Monmouth, Putnam was posted, for the winter, at Reading, in Connecticut, that he might protect the country adjoining to the Sound, and the garrison at West Point. While he was on a visit to one of his outposts, governor Tryon advanced upon him with 1500 men. Putnam had with him but 150 men and two field-pieces, with which he kept the enemy at bay some time. At length, seeing the enemy preparing to charge, he ordered his men to retire to a swamp, while he plunged down a precipice so steep as to have artificial steps, nearly one hundred in number, for the use of foot passengers. The enemy's dragoons stopped short, afraid to venture, although within a sword's length of him. While they went round the brow of the hill to gain the valley, he raised a force sufficiently strong to pursue Tryon on his retreat. In the campaign of 1779, he commanded the Maryland line, stationed near West Point. In the autumn of this year, the American army retired into winter quarters, at Morristown, and Putnam accompanied his family into Connecticut for a few weeks. At the commencement of his journey from thence to Morristown, while on the road between Pomfret and Hartford, he was seized with an extraordinary numbness of his right hand and foot, which crept gradually upon him, until his right side became, in a considerable degree, paralyzed. This severe affliction produced a transient depression of his mind; but he conquered his dejection, and resumed his naturally cheerful temper. He was still able to walk and ride moderately, and the faculties of his mind were unimpaired. In this situation he lived to see his country enjoying that independence of which he had been so able a champion, and died at Brookline, in Connecticut, May 29, 1790, aged seventy-two years.

Putrefaction. (See *Decomposition*, *Fermentation*, and *Adipocire*.)

Pütter, John Stephen, was born at Iserlohn in 1725, and made such rapid progress in his studies, that he was ready to enter the university in his 13th year. After studying at Marburg, Halle and Jena, he became professor extraordinary of law at Göttingen, in 1747, and soon became distinguished as a lecturer. In 1757, he was named *professor juris publici.* Although employed in various public capacities, he still continued to reside in Göttingen, till the time of his death in 1807. His works have lost much of their importance by the dissolution of the German empire, but his *Historische Entwickelung der Verfassung der Deutschen Staaten* (3 vols.) is still valuable.

Putty, in the arts. When tin is melted in an open vessel, its surface soon becomes covered with a gray powder, which is an oxide of the metal. If the heat is continued, the color of the powder gradually changes, and at last becomes yellow. In this state it is known by the name of *putty*, and employed in polishing glass and other hard substances.

Putty is also a kind of paste, compounded of whiting and linseed oil, beaten together to the consistence of a thick dough.

Puy de Dome. (See *Cevennes*, and *Barometer*.)

Puzzolana. (See *Pozzolana*, and *Cement*.)

Pygmalion; a prince of Cyprus, who, disgusted with the debaucheries of his countrywomen, took an aversion to the sex. According to Ovid (*Met.* x, 243), having made a female statue of ivory, he was so enchanted by its beauty, that he fell in love with his own work, and entreated Venus to endow it with life. His prayer was granted; the statue began to breathe and live before his eyes, and in his embrace. It became his wife, by whom he had Paphos, the founder of the city of the same name. Rousseau's opera of Pygmalion is founded on this story. Another Pygmalion, king of Tyre and Sidon, was brother of Dido.

Pygmy. The Pygmies were a fabulous nation of dwarfs, who were said to live near the sources of the Nile, or, according to some, in India. Homer mentions them as threatened with death and destruction by the cranes (*Il.* iii, 3). Later writers are more minute in their accounts. Pliny says that their towns and houses were built of eggshells; and, according to Philostratus, they cut down their corn, as one would fell a tree, with axes. The latter also speaks of an army of Pygmies, which attacked Hercules, while sleeping, after his struggle with Antæus. They made such preparations for the assault, as if they were to attack a city. But the hero, on awaking, laughed at the little warriors, wrapped them up in his lion-skin, and carried them to Eurystheus.

Pylades; son of Strophius, king of Phocis, and Anaxibia, the sister of Agamemnon, celebrated for the friendship which existed between him and Orestes. Pylades married Electra, the sister of his friend. (See *Orestes*.)

Pylos; a city of Elis, the residence of Nestor, now Navarino. (q. v.) Another Pylos in Elis was the residence of Augeas. (q. v.) Some, however, consider the city of Pylos in Messenia as the residence of Nestor.

Pym, John, a parliamentarian in the reign of Charles I, was descended of a good family in Somersetshire, where he was born in 1584. He was educated at Pembroke college, Oxford, whence he removed to one of the inns of court, and was called to the bar, and placed as a clerk in the office of the exchequer. He was early elected member of parliament for Tavistock in the reign of James I, and in 1626 was one of the managers of the impeachment of the duke of Buckingham. He was also a great opposer of Arminianism, being attached to Calvinistic principles. In 1639, with several other commoners and lords, he held a close correspondence with the commissioners sent to London by the Scottish covenanters; and in the parliament of 1640, was one of the most active and leading members. On the meeting of the long parliament, he made an able speech on grievances, and impeached the earl of Strafford, at whose trial he was one of the managers of the house of commons. It was the zeal and earnestness of Pym which led Charles into the imprudent measure of going to the parliament in person, to seize him and four other members. Some time before his death, he drew up a defence of his conduct, which leaves it doubtful what part he would have taken had he lived until hostilities commenced. In November, 1643, he was appointed lieutenant of the ordnance, and died Dec. 8, 1643.

Pyrallolite is a mineral which occurs massive and crystallized, in flat rhombic prisms, whose dimensions are not yet known with certainty. It is cleavable parallel with the sides of the rhombic prism; lustre resinous; color greenish or yellowish-white; translucent on the edges; hardness that of arragonite; specific gravity 2.6. When reduced to powder, it phosphoresces with a bluish light. Before the blow-pipe, it first becomes black, then white, and afterwards intumesces and melts on the edges. With borax, it yields a transparent glass. It consists of silex, 56.62; magnesia, 23.38; alumine, 3.38; lime, 5.58; oxide of iron, 0.99; protoxide of manganese, 0.99; and water, 3.58; leaving 6.38 of an unknown bituminous substance, and loss. It comes from Pargas in Finland.

Pyramid, in geometry, is a solid having any plane figure for its base, and triangles for its sides, all terminating in one common point or vertex. If the base of the pyramid is a regular figure, the solid is called a *regular* pyramid, which then takes particular names, according to the number of its sides, as *triangular*, *square*, *pentagonal*, &c., the same as the prism. (See *Prism*.) If a perpendicular from its vertex falls on the centre of the base, the solid is called a *right* pyramid, but if not, it is *oblique*. The principal properties of the pyramid may be stated as follows:—1. Every pyramid is one third of a prism of equal base and altitude. 2. Pyramids of equal bases and altitudes are equal to each other, whether the figure of their bases be similar or dissimilar. 3. Any section of a pyramid parallel to its base will be similar to the base, and these areas will be to each other as the squares of their distances from the vertex. 4. Pyramids, when their bases are equal, are to each other as their altitudes; and when their altitudes are equal, they are to each other as their bases; and when neither their bases nor their altitudes are equal, they are to each other in the compound ratio of their bases and altitudes. The solidity of a pyramid is found by multiplying its base by its perpendicular altitude, and taking one third of the product. *Frustum* of a pyramid is the solid formed by cutting off the upper part of a pyramid by a section parallel to its base.

Pyramids, in architecture; colossal structures of the ancient Egyptians. According to Herodotus, this people considered the pyramidal form as an emblem of human life. The broad base was significant of the beginning, and its termination in a point, of the end, of our existence in the present state; for which reason they made use of this figure in their sepulchres. Some writers derive the word *pyramid* from πυρος (wheat, grain), and understand by it granaries, such, for instance, as those built by the patriarch Joseph; others suppose it to come from πυρ (fire), because the form of the pyramid is like an ascending flame. The name is probably derived from an old Egyptian word. Some derive it from *piramue*, a ray of the sun; others, from *pirama*, a high monument. The Egyptian pyramids (for similar buildings are found among the Babylonians, the Indians and the Mexicans) are large, quadrangular and hollow, having a broad base, contracting gradually towards the top, sometimes terminating in a point, sometimes in a plane surface, generally built of large, though not very hard limestones (seldom of brick or of any other kind of stone than limestone), of different heights, usually having a base equal to the height, with the four sides placed so as to face the four cardinal points, two of the sides usually being larger than the other two. Some maintain that they were consecrated to the sun, or some other god; others, that they served as a kind of gnomon, for astronomical observations; according to Diderot, for the preservation and transmission of historical information; according to others, they were built merely to gratify the vanity and tyranny of kings, or for the celebration of mysteries, or secret meetings, or for corn magazines, or, finally,—and this is the most common opinion of the ancients,—for sepulchres, structures in burial places, symbolical representations of the world of shades, or as chambers for mummies. Among the most renowned are those of Cheops and Cephrenes. Those now standing, all in Middle Egypt, are divided into five groups, which contain about forty pyramids. The district in which the pyramids stand, begins at Dagshoor, and extends by Sakhara and Memphis, almost to 30° N. lat., about 14,000 paces in length, and less in breadth. The group of Gize (in the neighborhood of the ancient Memphis) is the most remarkable. Here is the largest one. Herodotus says that it has been supposed to contain the bones of Cheops, and that another one hard by covers the bones of Cephrenes, his brother and successor. The account of this ancient writer is not improbable, which says that 100,000 men worked without interruption for 20 years, in building this enormous pyramid, and that Cheops became an object of hatred to his people on this account. When Savary visited the pyramids of Gize, he obtained a guard from the governor of the district, to defend him against the Arabs. He left Gize at one o'clock in the morning, and was soon gladdened by the sight of the two largest pyramids, whose summits were illuminated by the moon. They appeared like rough, craggy peaks, piercing the clouds. At half past four in the morning, the visitors prepared to enter the great pyramid. They laid aside part of their clothes, and each one took a torch in his hand. They began to descend a long passage, which at last became so narrow that they were obliged to creep on their hands and knees. When they had passed through this passage, they were obliged to ascend in the same way. When they had traversed this second passage, they came to a much more spacious apartment, coated with granite, at one end of which Savary saw an empty marble sarcophagus, made of one piece of stone, but without a lid. Fragments of earthen vessels were scattered over the floor. They next proceeded to a second room, which lay under the one abovementioned, and was of smaller extent. It contained the entrance to a passage which was filled up with rubbish. They now ascended through this, avoiding, not without difficulty, a deep well on the left. When they reached the open air, they were all exhausted by the heat, which they had endured in the interior of the pyramids. After having rested themselves, they ascended the pyramids on the outside. They counted about 200 stone steps, varying from two to four feet in height, and they enjoyed from the summit a most delightful view of the country. The descent was much more laborious, Having reached the ground, they walked round it, and surveyed with astonishment the rough mass, which at a distance appeared smooth and regular. The form of this immense structure does not admit of a very exact measurement; the estimates which we have can only be considered as approximations. Herodotus gives 800 feet as its height, and says that this is likewise the length of its base on each side. Strabo makes it 625, Diodorus 600. Modern measurements agree most nearly with the latter. The difference of these results may be owing partly to the circumstance of their having been made at different times, and the sand having been higher at one time than another. Strabo says that the stone which closes the entrance to the pyramids, is to be found nearly in the centre of one of the sides; if this was true in his time, the soil must have been very much raised, since the entrance is not at present more than 100 feet from the ground. Herodotus says that the two largest pyramids are wholly covered with white marble; Diodorus and Pliny, that they are built of this costly material. The account of Herodotus is confirmed by present appearances. Denon, who accompanied the French expedition to Egypt, makes the following observations on the present state of the pyramids: Bonaparte had determined to examine the great pyramid of Gize; 300 persons were appointed to this duty, among whom was Denon. They approached the borders of the desert in boats to within half a league of the pyramid, by means of the canals from the Nile. The first impression made on Denon by the sight of the pyramids did not equal his expectations, for he had no objects with which to compare them; but on approaching them, and seeing men at their feet, their gigantic size became evident. The visitors ascended a small elevation of rubbish and sand, which led to the entrance of the pyramid. This opening, which, according to Denon's calculation, is about 60 feet above the ground, is concealed by a stone wall, which forms the third and innermost of the walls surrounding the pyramid. Large stones are placed horizontally at the side of the entrance, and above these, others of enormous size are so placed as to make their fall or displacement very difficult. Here begins the first entrance, leading towards the centre and the ground floor of the building. At the end of this passage, Denon says, two large blocks of granite stopped the way. Finding all endeavors to remove this obstacle useless, he went a little way back, passed round two other blocks of stone, and succeeded in climbing over them, when he discovered another passage, so steep that it was necessary to cut steps in order to ascend it. This led into a landing place, in which is a deep hole, usually called the well. It is the entrance to a horizontal passage leading to an apartment, known under the name of the queen's chamber, which is without any inscription or ornament. From the above landing place, an opening leads in a perpendicular direction to the principal passage, and this ends in a second room, where the third and last partition is found. This is built with much greater care. Finally comes the king's chamber, which contained a sarcophagus. This pyramid has been since more completely examined by Caviglia. The other pyramid of Gize—that of Cephrenes—was first opened and visited by Belzoni in 1818. In the sarcophagus of this pyramid he found some bones, which were sent to London, and, on examination, proved to be those of an animal of the bovine species. The chambers, passages, shafts, &c. resemble those of the pyramid of Cheops above described. (See Belzoni's *Researches and Operations in Egypt and Nubia.*) Beside this group, there are others, but of less magnitude, at Abousir, Sakhara, and Dashour. An account of Belzoni's and Caviglia's examinations may be found in Russell's Ancient and Modern Egypt (No. xxiii of Harper's Family Library). The singular monuments of the ancient inhabitants, found in Mexico, are also called *pyramids*. They are built of brick, disposed in layers alternating with clay, and the sides are constructed in terraces, as in that of Cholula, or of a mixture of clay and pebbles, with a coating of stone, overlaid with a plastering of lime. Those of Teotihualcan are considered to be of the eighth century. Another remarkable monument of this kind is the pyramid of Papantla, near Vera Cruz, which had been carefully concealed by the superstitious veneration of the Indians, until accidentally discovered about sixty years ago. It is constructed of large blocks of hewn porphyry, cemented with mortar, and sculptured in relief with innumerable figures, principally of serpents and alligators. Like the others before mentioned, its sides are formed into terraces, the wall above each of which contains a number of square niches, in the whole 378, being, as is supposed, intended to represent the common year, and the intercalary days at the termination of each cycle. It is about sixty feet high, and has a base eighty feet broad. (See *Mexico, Antiquities of.*)

Pyramids, Battle of the. (See *Egypt, Campaign in.*)

Pyramus. (See *Thisbe.*)

Pyrenees; a range of mountains dividing France from Spain, extending, almost in a straight line, from St. Sebastian on the bay of Biscay, to Port Vendres on the Mediterranean, a distance of about 250 miles. From the principal chain proceed various inferior ridges. The acclivity of the Pyrenees, on the side of Spain, is often extremely steep, presenting a succession of rugged chasms, abrupt precipices, and huge masses of naked rock; on the side of France, the ascent is more gradual. Like the Alps, they present a great variety of climate and production, and the same rapid transitions from sterility to luxuriant vegetation. They yield great quantities of timber. The mineral productions are iron, copper, lead, zinc, cobalt, and the precious metals. Some of the highest summits are Maladetta, 10,722 feet, Mont Perdu, 10,578, Vignemale, 10,332, Marboré, Pic Blanc, and Pic Long. On the Spanish side, the highest summit is the Mousset, differently estimated at from 6646 to 8461 feet high. Montserrat (q. v.) is celebrated for its monastery and hermitages. The valley of Campan is the most beautiful part of the Pyrenees. (See *Cagots.*) There are upwards of one hundred passages for pedestrians, and seven for carriages, over the mountains from one country to another. The most frequented carriage roads are from Junqueira to Perpignan, on the east; from St. Sebastian to St. Jean de Luz, on the west; and from Pamplona to St. Jean de Pied de Port, at some distance inland. The passes in the interior are over very high ground; that at Pineda being 8248 feet above the sea. For further information, consult Ramon's *Observations sur les Pyrénées; Voyage au Mont Perdu* (1801); Melling's *Voyage pittoresque* (1825); and Laboulinière's *Voy. descriptif et pittoresque.* Charpentier's work, *Sur la Constitution géognostique des Pyrénées* (Paris, 1823) obtained the prize offered by the Paris academy of science.

Pyrenees, Lower; Upper Pyrenees; Eastern Pyrenees. (See *Department.*)

Pyrenees, Peace of the; concluded between France and Spain by Mazarin and De Haro, on the isle of Pheasants, in the river Bidassoa, on the borders of the two countries, 7th November, 1659. After the peace of Westphalia, 1648, the war between France and Spain, which had begun 1635, still continued. France formed an alliance with England in 1657, after Cromwell had (1655) declared war against Spain, and taken several strong places in the Spanish Netherlands; Spain also suffered by sea and in America; Portugal had revolted in 1640, Catalonia was in rebellion, and Andalusia disposed to insurrection; and in Italy, Savoy had seized Spanish Lombardy. Philip IV, king of Spain, consented therefore to that peace, which confirmed the ascendency of Louis XIV. Spain ceded to France Roussillon, with the fortress of Perpignan, Conflans, and a part of the Cerdagne, so that the Pyrenees have since formed the boundary of the two kingdoms; and in the Netherlands, Artois, and part of Flanders, Hainaut, and Luxemburg, with the fortified towns of Arras, Hesdin, Gravelines, Landrecy, Quesnoy, Thionville, Montmedy, Marienburg, Philippeville, &c In 1815, France was obliged to cede the two last named fortresses to the kingdom of the Netherlands. France bound herself not to support Portugal. The prince of Condé and the dukes of Lorraine, Savoy, and Modena, and the prince of Monaco (the two first especially), were left in *statu quo*. In consequence of this peace, Louis XIV married Maria Theresa, eldest daughter of Philip IV, who, in 1660, renounced all right of inheritance to the Spanish throne. Louis XIV, however, afterwards made pretensions to this right, from which arose the devolution war, and the war of the Spanish succession. (See *Aix-la-Chapelle, Peace of*, and *Utrecht, Peace of*.)

Pyrites; a genus of inflammable substances, composed of sulphur, which has dissolved or saturated itself with metals.

Pyrmont, or **Neustädt Pyrmont**; a town in the principality of Waldeck, situated in a pleasant valley on the Emmer, thirty-three miles south-west of Hanover. It is well built, with delightful walks, and is famous for its thermal waters, which are yearly visited by 1800 strangers. The waters are saline. (See *Mineral Waters*.) In the vicinity are the ruins of the old castle of Pyrmont, or Schellpyrmont, and the cave called Dunsthöhle, from which issues carbonic acid gas. There is also here a colony of Quakers, called Friedensthal (Vale of Peace).

Pyrochlore; a mineral recently detected in the zircon sienite of Fredericksværn, in Norway. It occurs crystallized in regular octahedrons; specific gravity, 4.2; scratches fluor; streak brown; fracture conchoidal, without any trace of cleavage; lustre between vitreous and resinous. Its color is reddish brown, and on the fresh surface almost black; in thin splinters, translucent. It consists of titanic acid 62.75, lime 12.85, oxide of uranium 5.18, oxide of cerium 6.80, oxide of manganese 2.75, oxide of iron 2.16, oxide of zinc 0.61, water 4.2, fluoric acid undetermined, and magnesia a trace.

Pyroligneous Acid. (See *Vinegar*.)

Pyrometer; an instrument for the measurement of temperatures above those which we are able to estimate by the mercurial thermometer. Mercury boils at 660°, above which point it is incapable of measuring heats; although many temperatures connected with the most common processes are greatly above this point, as, for example, the heat of a common fire, the melting point of silver, copper, and gold. The first pyrometer was that invented by Mr. Wedgewood. It consisted of small pieces of clay from Cornwall, moulded into cylinders of a determinate size, and baked in a low red heat. These pieces were of just such a size as to enter between two square brass rods, fixed on a brass plate twenty-four inches long, half an inch asunder at one extremity, and 0.3 inch at the other. The brass rods were divided into inches and tenths, making in all 240 divisions, or degrees. When pieces of clay, baked in Wedgewood's manner, are exposed to heat, they shrink in their dimensions, and the degree of shrinking was believed to be proportional to the temperature. This was the foundation of his instrument. The heat to which the piece of clay was exposed was indicated, when its shrinkage was measured between the brass rods. If exposed to the heat at which silver melts, it advanced between the brass rods to 22°, or 2.2 inches; if to the melting point of gold, to 32°; and if to the melting point of cast iron, to 130°; and so on. But this pyrometer of Wedgewood has been long laid aside, in consequence of the observation, that if a piece of this clay was long exposed to a low temperature, it shrunk as much in its dimensions as if it had been exposed for a short time to a much higher temperature. In 1803, Guyton de Morveau presented to the French institute a pyrometer of platina, which measured high temperatures by the expansion of this refractory metal. An improvement of this instrument was brought forward by Mr. Daniel in 1821, which consisted of a bar of platina 10½ inches long, and 0.14 inch in diameter. It is placed in a tube of black lead or earthen ware, and the difference between the expansion of the platina bar and the earthen ware tube is indicated on a circular scale. This pyrometer indicates a change of about 7° of Fahrenheit; or, in other words, 1° of Daniel is equal to 7° of Fahrenheit. The following are some of the results obtained by this instrument:

	Daniel.	Fahr.
Boiling point of mercury,	92°	644°
Fusing point of tin,	63	441
“ “ bismuth,	66	462
“ “ lead,	87	609
“ “ zinc,	94	648
“ “ brass,	267	1869
“ “ silver,	319	2233
“ “ copper,	364	2548
“ “ gold,	370	2590
“ “ cast iron,	497	3479
Red heat just visible in daylight,	140	980
Heat of a common fire,	163	1141.

Pyrophorus; an artificial product, which takes fire on exposure to the air. It is prepared by several methods. The oldest way of proceeding is as follows:—

Four or five parts of burnt alum are mingled with two of charcoal powder. The mixture is introduced into a vial or matrass, with a neck of about six inches long. The vial is filled about two thirds full, and put into a crucible, the bottom of which is covered with sand. The body of the flask is also surrounded with sand, after which the crucible is put into a furnace, and surrounded with red-hot coals. The fire is gradually increased until the flask becomes red hot, at which temperature it is maintained for about a quarter of an hour. As soon as the vessel is become cool enough to be handled, the vial is taken out of the sand, and the contents transferred into a dry and stout glass, made warm, which must be secured with a glass stopper. Whenever this mixture is poured out in the air, it takes fire. A pyrophorus may be prepared by mixing three parts of alum with one of wheat flour, and calcining them in a vial, as in the above case. Tartrate of lead, also, on being heated in a glass tube until it becomes converted into coaly matter, gives rise to a beautiful pyrophorus. But the pyrophorus invented by doctor Hare of Philadelphia is the most remarkable. It is formed from heating a mixture of three parts lampblack, four calcined alum and eight pearlashes, in a gun-barrel. The mixture is maintained at a cherry-red heat about one hour, or until it ceases to give off inflammable gas at the orifice of the tube, after which it is withdrawn from the furnace, and closely corked from the air. When cold, if poured from the gun-barrel into the air, it immediately glows and takes fire; and more especially if breathed upon, or slightly moistened. This pyrophorus may be preserved in its full activity for a year or more, if well corked up from the air, but it requires much caution in disengaging it from the tube; for it has been known to explode, with great violence, simply on introducing into it an iron ramrod. This compound appears to owe its energy to its containing the sulphuret of potassium.

Pyrophysalite. (See *Topaz.*)

Pyrosmalite; a lamellar substance, found also in six-sided tables, of a shining lustre; translucent; brittle; specific gravity 3.08. It is soluble in muriatic acid, with a residuum of silex. It gives out the odor of chlorine when heated before the blow-pipe, and becomes attractable by the magnet. Its constituents are peroxide of iron 21.81, protoxide of manganese 21.14, sub-muriate of iron 14.09, silex 35.85, lime 1.21, water and loss 5.9. It occurs in a bed of magnetic iron ore, along with calcareous spar and hornblende, in Bjelke's mine in Nordmark, in Wermeland.

Pyrotechny is, properly speaking, the science which teaches the management and application of fire; but, in a more limited sense, and as it is more commonly used, it refers chiefly to the composition, structure and use of artificial fire-works. The ingredients are, 1. saltpetre, purified for the purpose; 2. sulphur; and, 3. charcoal. Gunpowder is likewise used in the composition of fire-works, being first ground, or, as it is technically termed, *mealed*. Camphor and gum-benzoin are employed as ingredients in odoriferous fire-works. The proportions of the materials differ very much in different fire-works, and the utmost care and precaution are necessary in the working them to a state fit for use, and then in the mixing. When stars are wanted, camphor, alcohol, antimony, and other ingredients, are required, according as the stars are to be blue, white, &c. In some cases, gold and silver rain is required; then brass-dust, steel-dust, saw-dust, &c., enter into the composition. Hence the varieties may be almost indefinite. With respect to color, sulphur gives a blue, camphor a white or pale color, saltpetre a clear white yellow, sal-ammoniac a green, antimony a reddish, rosin a copper color.

Pyroxene, or Augite. (See *Augite.*)

Pyroxylic Spirit. When wood is distilled, the products are water, acetic acid, pyroxylic acid, empyreumetic oil, and a black matter, which is considered as analogous to pitch, or, rather, tar. When the watery portion, freed as well as possible mechanically from the tar, is distilled at a low heat, the first portion that comes over is the pyroxylic acid, which may be freed from acetic acid by agitation with lime or magnesia, and subsequent distillation at a low temperature; but it is still impure from the presence of empyreumatic oil. To free it completely from this impurity, it must be mixed with its own weight of sulphuric acid, and the mixture be subjected to distillation. Thus purified, it is a transparent and colorless liquid, having a strong and pungent smell, which has been compared to that of ants, and also to the odor of acetic ether. Its taste is strong, hot, pungent, and very disagreeable. Specific gravity, in its most concentrated state, 0.8121. Its boiling point is 150°. When completely freed from acetic acid, it does not redden vegetable blues. It burns with a very pale yellow flame, inclining to blue, but the light is considerably greater than that given out by alcohol. It burns all away, without leaving any residue, and the only products are carbonic acid and water. It dissolves in alcohol in any proportion. With water it becomes opaque, owing, probably, to a small quantity of oil it still contains. It dissolves readily in oil of turpentine, and in liquid potash, acquiring, at the same time, a yellowish color. When the solution of this spirit in potash is distilled, we are able to obtain it perfectly pure from every portion of oil. When this spirit is mixed with nitric acid and distilled, an ethereal liquid comes over, possessed of an exceedingly pungent smell, and acting strongly on the nose and eyes. It burns with a bluish flame. The specific gravity of this vapor is 1.94.

Pyrrha. (See *Deucalion.*)

Pyrrhichius. (See *Rhythm.*)

Pyrrho, a Grecian philosopher of Elis, founder of the Pyrrhonian or ancient sceptical school, flourished about 340 B. C., and was probably born about the 101st Olympiad. In his youth he studied the art of painting, but was early led to apply himself to philosophy by the writings of Democritus. He accompanied his master, Anaxarchus, to India, in the train of Alexander the Great. During this journey, he became acquainted with the doctrines of the Brahmins, Gymnosophists, Magi, and other Eastern philosophers. His doubts concerning positive knowledge (or his scepticism) were strengthened as he proceeded in his studies, until at length he came to hold all knowledge useless, and considered virtue alone as valuable. In all disputes, his answer to his opponents was, "What you say may, or may not, be true; I cannot decide;" and he taught in his school, that truth could not be attained, but we must be content to suspend our judgment on all subjects. He spent a great part of his life in solitude, and, by abstaining from all decided opinions (ἐποχη) concerning moral and physical phenomena, he endeavored to attain a state of tranquillity not to be affected by fear, joy or sorrow. He bore corporal pains with great fortitude, and no danger could disturb his equanimity. In disputation, he was distinguished for acuteness of argument and clearness of language. His countrymen made him high priest, and exempted all philosophers from the payment of taxes. Pyrrho died in the ninetieth year of his age. The Athenians erected a statue in honor of him, and his countrymen raised a monument to his memory. His scepticism is easily accounted for. He early became acquainted with the system of Democritus, who held that, except the immediate elements of bodies (atoms), nothing was real, and that all perception was subjective. (See *Objective.*) He was confirmed in these views by the doctrines of Socrates, to whom, in his character, he bore a great resemblance. Cicero mentions him expressly among the disciples of Socrates, and his scepticism is allied to the irony of that philosopher. Led, by his temperament and his manner of life, to esteem an uninterrupted tranquillity the great object of all philosophy, believing that nothing tended so much to destroy this quiet as the interminable disputes of the schools of the Dogmatists, and that uncertainty was increased by their contentions, he determined to seek, in some other way, the peace which he despaired of finding in dogmatical philosophy. This made him a sceptic. Pyrrho left no writings. His friend and scholar, Timon, first wrote on the subject of scepticism, but his writings are lost. It is only from the works of his later followers, particularly Sextus Empiricus, that we learn the principles of his school, or rather their mode of thinking, by which they strove rather to overthrow other philosophical structures, than to build up one of their own.—A disposition to doubt is often called, from this philosopher, *pyrrhonism*.

Pyrrhus; son of Achilles and Iphigenia, whom his father, after the sacrifice of Iphigenia, carried to Scyros, and gave to Deïdamia. Others say that Deïdamia, daughter of Lycomedes, was his mother. He was educated at Scyros, and remained there till after his father's death, when Ulysses and Diomedes took him away, because Calchas had declared, that without him Troy could not be taken. He now received the name of *Neoptolemus*, on account of his engaging in war so young. Homer describes him as beautiful, eloquent and fearless. The post-Homeric poets ascribe to him the sacrifice of Polyxena on the tomb of his father, the carrying off of Philoctetes from Lemnos, and the death of Polites and Priam. Andromache and Helenus fell to his share among the captives. Later accounts differ very much. Some say that he returned by land; others, by water. According to some, he went to Epirus, among the Molossi, and there founded a new kingdom. Here Andromache became his wife, by whom he had Molossus, Pierus and Pergamus, and, at length, left his wife and his kingdom to Helenus, whom he honored as a soothsayer. He then appears in a new mythological series of events, the basis of which is to be found in Homer. He is represented to have married Hermione, whom her father, Menelaus, had betrothed to him before Troy. On this account he was, according to some, murdered by Orestes, the former husband of Hermione, at the altar of Apollo. According to others, his death was occasioned by Apollo, whom he had offended. It is generally agreed, that his death took place at Delphi. Here his grave was shown, and a yearly sacrifice was offered in honor of him.

Pyrrhus II, king of Epirus, B. C. 300, was one of the greatest generals of his age, ambitious of fame and conquest. He ascended the throne of his father when but twelve years old: being driven from it, five years afterwards, by Neoptolemus, he soon regained it, and increased his power by the conquest of Macedonia. Being called by the Tarentines (see *Tarentum*) to aid them against the Romans, he twice defeated the latter by means of his elephants, to which the Romans were unaccustomed; but his confession, "Such another victory, and I must go home alone," proved the cost of his triumph. In the mean time, the disturbances in Syracuse tempted him into Sicily. But he returned to Italy, without having accomplished his vain scheme of conquest; and being here defeated by the Romans, who had now become acquainted with his mode of fighting, he was obliged to return to Greece, without having succeeded in his designs. A tile, at the siege of Argos, ended his restless life (272 B. C.). From this king the Romans learned most of their art of war, which afterwards made them so formidable to their enemies. (See *Fabricius*.)

Pythagoras; a Grecian philosopher, founder of the Italian school. According to the most received opinion, he was a native of Samos. His father, Mnesarchus, was a merchant (probably of Tyre or some other Phœnician city), who traded to Samos, where he received the rights of citizenship, and settled with his family. The year of Pythagoras's birth is uncertain; probably it took place about 584 or 586 B. C. His history is mingled with many fables. He received his first instruction from Creophilus in his native city. He then went to the island of Scyros, and was a scholar of Pherecydes till the death of the latter; others make him also a scholar of Thales. Jamblichus says, that Pythagoras, during his journey to Egypt, spent some time in Phœnicia in intercourse with the successors of Moschus and other priests of the country, by whom he was initiated into their mysteries, and that he travelled through various parts of Syria, in order to become acquainted with the most important religious usages and doctrines. But this account is blended with many fabulous circumstances. Pythagoras is said to have been recommended by Polycrates, king of Samos, to the Egyptian king Amasis. In Egypt he was probably initiated into the mysteries of the priests, and became acquainted with the whole range of Egyptian learning. From Egypt he is said to have journeyed to the East, and visited the Persian and Chaldean Magi, as well as the Indian Gymnosophists. After his return, he opened a school at Samos, in which he taught his doctrines in a symbolic form, in imitation of the Egyptians. Tradition, moreover, relates that he went to Delos, and received from the priestess moral maxims, which he communicated to his disciples under the name of *divine precepts*. He also visited Crete, where the priests of Cybele took him to the caverns of Ida, in which Jupiter had been cradled, and where his grave was pretended to be shown. Here he met Epimenides, who boasted of having intercourse with gods and the gift of prophecy, and whom he initiated into the sacred mysteries of the Greeks. From Crete he is said to have gone to Sparta and Elis, and from thence to Phlius, where, being asked by king Leon what was his profession, he replied that he was a philosopher (or friend of wisdom), declaring that the name of *sage* (*sophos*) belonged solely to the Divinity. With augmented knowledge he returned home, where he now founded a philosophical school with great success. His doctrines seemed divine oracles; and the sacred obscurity in which he had the art of veiling them, attracted a great number of disciples. He resolved, nevertheless, to leave Samos, either to avoid the public offices conferred upon him, or the tyranny of Polycrates, and went to Magna Græcia. He landed at Crotona, whose inhabitants were notorious for the looseness of their manners. From all traditions it may be concluded, that he laid claim to supernatural powers, and his extraordinary qualities collected around him persons of all classes. The good effects of his influence were soon visible. Sobriety and temperance succeeded to the prevailing luxury and licentiousness. Six hundred of the inhabitants of Crotona are said to have submitted to the strictest precepts of his doctrine, and united their property in one common stock, for the benefit of the whole community or society which Pythagoras founded. The object of the society was to aid each other in promoting intellectual cultivation. From all quarters Pythagoras found numerous pupils, who paid him almost divine honors. But as he taught the nobles, who joined him, his society became suspected by the popular party. At the head of his enemies in Crotona was Cylon, a rich and respectable citizen, whose enmity he had excited by refusing to receive him among his scholars. In revenge, Cylon once attacked the house of Milo, where a number of Pythagoreans were assembled, surrounded it with his partisans, and set it on fire. Forty persons perished, and but few escaped. Pythagoras was probably not in the house. He fled to the Locrians, and, when these refused to receive him, to Metapontum. Finding enemies here also, who meditated his ruin, he sought an asylum in the temple of the Muses, where, according to tradition, he perished from want of sustenance, eighty years of age (about 506 B. C.). His scholars are said to have paid him divine honors after his death. He is said to have asserted, that his soul had already lived in several bodies. In public he appeared in the Oriental costume, in a long white robe, with a flowing beard, and, as some say, with a crown of gold on his head. His exterior was grave, commanding, and dignified. He abstained, it is related, from all animal food, and limited himself to vegetables, not, however, eating beans. These circumstances contributed to give him the appearance of an extraordinary being. To show his respect for marriage, he took a wife at Crotona, by whom, among several children, he had two sons, Telanges and Mnesarchus, who were his scholars and successors. That Pythagoras left any works, is improbable on the testimony of the ancients. The Golden Sentences, extant under his name, which may be considered as a short abridgment of his popular doctrines, appear to have been composed by later hands. Like those of the Egyptian priests, his doctrines were of two kinds, public and secret. His public instruction consisted of practical discourses, in which he recommended virtue and dissuaded from vice, with a particular reference to the various relations of mankind, such as those of husbands and wives, parents and children, citizens and magistrates, &c. His hearers at these lectures must not be confounded with the members of his society, whom he subjected to a separate discipline, and not till after long instruction and severe examination admitted to all the mysteries of his secret doctrines. These scholars were required to practise the greatest purity and simplicity of manners. He imposed upon them a silence of two to five years, according to circumstances (the Pythagorean silence). For a time, the disciples were only hearers. The well-known "He said so (αὐτὸς ἔφα)" was sufficient authority, without any proof. He alone, who had passed through the appointed series of severe trials, was allowed to hear the word of the master in his immediate presence. Whoever was terrified by the difficulties, might withdraw without opposition, and his contributions to the common stock were repaid, a tomb was erected to him as if he were dead, and he was no more thought of. To the members of the secret society, the doctrines were not delivered, as to others, under the mask of images and symbols, but unveiled. These secrets probably related to religious and political subjects. It was requisite, however, to take an oath of secrecy. The pupils could now interrogate and make objections. They were called, by way of distinction, *Pythagoreans*. As soon as his disciples had made sufficient progress in geometry, they were introduced to the study of nature, to the investigation of fundamental principles, and to the knowledge of God. Others, according to their inclinations and capacities, were instructed in morals, economics, or politics, and afterwards employed either in managing the affairs of the society, or sent abroad to inculcate and bring into practice the principles of philosophy and government in the other Grecian cities. According to the accounts of later writers, the mode of living at the Pythagorean school at Crotona, was the following: The Pythagoreans, with their wives and children, lived together in a public building, in perfect harmony, as if one family. Each morning it was decided how the day should be spent, and every evening a review was made of all that had been done. They rose before the sun, in order to worship it; verses from Homer and other poets were then recited, or music was introduced, to arouse the mental powers, and fit them for the duties of the day. Several hours were then spent in serious study. A pause followed for recreation, in which a solitary walk was usually taken, to indulge in contemplation; a conversation then took place. Before dinner, various gymnastic exercises were performed. The common meal consisted principally of bread, honey and water. The remainder of the day was devoted to public and domestic affairs, conversation, bathing, and religious performances. After the destruction of the association, and the flight of his scholars from Lower Italy, Lysis and Archippus deemed it necessary to collect the doctrines of their master in a systematic treatise, and preserve them from oblivion; but the greatest secrecy was nevertheless recommended. Thus Plato purchased from Philolaus a writing on the philosophy of Pythagoras, and received from Archytas his commentaries on the verses and tenets of his master. The accounts that we possess of the doctrines of Pythagoras are very scanty, and, with the exception of what we learn from Aristotle, and from some fragments of the Pythagoreans, very uncertain. Neither can we accurately discriminate between his doctrines and those of his scholars. Later writers represent him as making it the object of all philosophy to exalt the mind to the contemplation of immutable truth, to the knowledge of divine and spiritual objects. This can only be effected by degrees, on account of familiarity with sensual things. The first step to wisdom is the study of mathematics, the foundation of which appeared to him to be the doctrine of numbers. Numbers are, in his view, the first and most essential of things. They are, as it were, the model, according to which the world is formed in all parts. The odd numbers are limited and perfect; the even unlimited and imperfect. The *monad*, or unity, is the source of all numbers. The *dyad* is, according to the later Pythagorean doctrines, imperfect and passive, and the cause of increase and division. The *triad*, compounded of the *monad* and *dyad*, partakes of the nature of both. The *tetras*, or number four, is in the highest degree perfect. The *decad*, which contains the sum of the four prime numbers, and is therefore called *tetractys*, comprehends all musical and arithmetical proportions, and denotes the system of the world. The real meaning of the Pythagorean doctrine of numbers is not well understood; numbers were probably, in this system, the symbolical or allegorical representations of the first principles or forms of nature. As Pythagoras could not express abstract ideas in simple language, he seems to have made use of numbers, as geometers do of a diagram, to assist the comprehension of his scholars. He perceived some analogies between numbers and the attributes of the divine understanding, and made the former the symbols of the latter. As the numbers proceed from the *monad*, or unity, undergo various combinations, and in their progress assume new properties, so he regarded the pure and simple essence of the Deity as the common source of all the forms of nature, which, according to their various modifications, possess different properties. Pythagoras is also said to have invented the multiplication table (*abacus*), thence called the *Pythagorean table*. Next to numbers, music belongs to the preparatory exercises of the Pythagorean school, by which the mind was elevated above the dominion of passion, and fitted for contemplation. Pythagoras considered music not only as an art to be judged of by the ear, but as a science to be reduced to mathematical maxims and relations, and allied to astronomy. Tradition makes him the inventor of a musical (Pythagorean lyre, *octochordum Pythagoræ*), which, after his death, was engraved in brass, and preserved in the temple of Juno at Samos. The invention of the harmonic canon, or monochord—an instrument of a single string—which served for the measurement of musical intervals, has also been ascribed to him by ancient and modern writers. He believed that the heavenly spheres, in which the planets move, dividing the ether in their course, produced tones, and that the tones must be different according to their size, velocity and distance. That these relations were in concord, that these tones produced the most perfect harmony (music of the spheres), he necessarily believed, in consequence of his notions of the supreme perfection of the universe. The real meaning of this doctrine was, that he regarded the world as a harmonically arranged whole (κοσμος), in which the relations of numbers were realized. His followers took occasion from this doctrine to say of their master, that he was the only mortal whom the gods had permitted to hear the harmony of the spheres. Geometry, which he had learned in Egypt, he reduced, more than any of his predecessors and contemporaries, to the form of a regular science. According to his notion, the geometrical point was simple, the line double, the area threefold, and solids quadruple; and in this way, also, he applied the doctrine of numbers. Of the geometrical theorems which are ascribed to him, the following are the most important: The three angles of a triangle are together equal to two right angles; and in a right-angled triangle, the square of the hypothenuse is equal to the sum of the squares of the two sides. This last is still called the *Pythagorean theorem* (also *magister matheseos*), although it is doubtful whether Pythagoras invented it. In astronomy he taught the following: The word *heaven* denotes either the spheres of the fixed stars, or the whole space between the fixed stars and the moon, or the whole world, including both the heavenly spheres and the earth. Agreeably to the arithmetical hypothesis, there are ten heavenly spheres, of which nine are visible to us, viz. the sphere of the fixed stars, the seven spheres of the seven planets (including the sun and moon), and the sphere of the earth. The tenth earth, called by him *Antichon* (anti-earth), is invisible, but necessary to the perfection of the harmony of nature, since the *decad* is the perfection of the numerical harmony. By this anti-earth he explains the eclipses of the moon. In the middle of the universe is the central fire, principle of warmth and life. The earth is one of the planets, moving around the sphere of fire. The atmosphere of the earth is a gross, immovable mass, but the ether is pure, clear, always in motion, and the region of all divine and immortal natures. The distances of the various heavenly spheres from the earth correspond to the proportions of the musical scale. His moon and stars are gods, or inhabited by gods. Pythagoras, therefore, rendered important services to the mathematical sciences, and first established a mathematical philosophy. His disciples Philolaus, Archytas, Ecphantus, Ocellus, Timæus, carried it farther. Philolaus, in particular, whose fragments are the most valuable relics of the Pythagorean school, distinguished himself by his astronomical system. With mathematics were also connected the natural sciences. With respect to philosophy, Pythagoras taught, that true knowledge embraced those subjects which are in their nature immutable, eternal and indestructible, and of which alone it can be properly predicated, that they exist. He who devotes himself to this study is a philosopher. The object of philosophy is, by contemplation, to render the human mind similar to the divine, and make it fit to enter the assembly of the gods. For this purpose it is necessary to invoke, in prayer, the assistance of the Divinity and good demons. Contemplative wisdom cannot be fully attained without entire abstraction from common things, without entire tranquillity, and freedom of mind. Hence the necessity of founding a society separate from the world, for contemplation and study. The theoretical philosophy of Pythagoras, which treats of nature and its origin, was enveloped in the most profound obscurity, and we know nothing of it, but what may be conjectured from single intimations of the ancients. In the opinion of Pythagoras, God is the universal spirit, diffused in all directions from the centre, the source of all animal life, the actual and inward cause of all motion, in substance similar to light, the first principle of the universe, incapable of suffering, invisible, indestructible, and to be comprehended by the mind alone. To the Divinity there were subordinate, according to the notions of the Pythagoreans, three kinds of intelligences, gods, demons and heroes, emanations of the supreme God, varying in dignity and perfection, in proportion as they were more or less removed from their source. The heroes he believed to be clothed with a body of subtile matter. Besides these three kinds, there was a fourth—the human mind; likewise an emanation of the Divinity. As God is one, and the origin of all variety, he was represented as a monad, and the subordinate spirits as numbers derived from and contained in unity. Thus the numbers of Pythagoras resembled the ideas of Plato, excepting that they are contained in the things themselves. The regions of the air the Pythagoreans thought filled with spirits, demons and heroes, who were the cause of health or sickness to men and animals, and, by means of dreams and other kinds of divinations, imparted the knowledge of future events. The soul, according to him, was likewise a number, and by numbers it first has perception, as Philolaus says, of the world; it is an emanation of the central fire, and, consequently, always in motion, and indestructible. Of man, the Pythagoreans believed, at least the later, that, since he consisted of an elementary nature, of a divine or rational principle, he was a microcosm; that his soul was a self-moving principle, and consisted of two parts, the rational, which was a portion of the universal soul, an emanation of the central fire, and had its seat in the brain, and the irrational, which comprised the passions, and lived in the heart; that in both, man had something in common with the brutes, who, on account of their bodily structure and the want of language, are incapable of acting reasonably; that the sensitive soul (θυμος) perishes, but that the rational mind (φρενες, νους) is immortal, because it has its origin in an immortal source; that the latter, when freed from the fetters of the body, assumes an ethereal vehicle, and passes to the habitations of the dead, where it remains till it returns to the world, to dwell in some other human or animal body, and that at last, when sufficiently purified, it returns to the source from which it proceeded. This doctrine of the transmigration of souls (metempsychosis), which was originally Egyptian, and connected with the idea of the reward and punishment of human actions, was the chief cause why the Pythagoreans killed no animals. His morality Pythagoras taught in symbolic maxims and ascetic precepts, in connexion with his contemplative views. The powers of the mind are reason and passion; where the latter is obedient to the former, virtue reigns. The mind possesses unity, harmony, and a resemblance to God. Right consists in retribution. The following maxims are also ascribed to him. "Youth should be habituated to obedience, for it will then find it easy to obey the authority of reason. It should be trained in the best course of life; habit will soon make it the most pleasant." "Silence is better than unmeaning words." "The wise man should be prepared for every thing that does not lie within his control." "Do what you consider right: whatever the people think of you, despise its censure and its praise." "It is cowardly to quit the post assigned us by God, before he permits us." "Strength of mind rests on sobriety, for this keeps the reason unclouded by passion." "No one is to be deemed free, who has not perfect self-command." "Intoxication is a temporary madness." "The desire for the superfluous is folly, for it has no bounds," &c. The Pythagoreans recommended, especially, the virtue of friendship. In it, Pythagoras requires the absence of all dissension, perfect confidence, aid under all circumstances, and a mutual endeavor to make each other perfect. To true friends every thing is common. True friendship is imperishable. In performing the usages of religion, he required piety of soul. The gods are to be worshipped by symbols corresponding to their nature, by simple purifications and offerings, and with purity of heart. An oath should never be violated. The dead must not be burned. Next to the gods and dæmons, the highest respect belongs to parents and lawgivers. The laws and customs of our country are to be sacredly observed. The Pythagorean philosophy had a great influence on the Platonic. In later times, it was revived and intermingled with New Platonism.—See *Geschichte der Pythagoräischen Philosophie*, by Ritter (Hamburg, 1826), and Bökh's *Disputat. de Platonico Systemate Cœlest. Glob.*, &c. (Heidelb., 1810, 4to.).

Pythagorean Lyre.
Pythagorean Table.
Pythagorean Theorem. (See *Pythagoras.*)

Pythia, and **Pythonissa**. (See *Delphi.*)

Pythian Games; one of the four great Grecian games, instituted in early times, in honor of Apollo, the conqueror of the Python. They were celebrated in the Crissean fields near Delphi (formerly called *Pytha*), at first every nine years, but afterwards, by the command of the Amphictyons, every five years. Poems in honor of Apollo were sung to the flute or the lyre, and poets contended for the prize, which was a crown of laurel or oak. The Amphictyons were the judges in the contests. Other musical and gymnastic contests were afterwards added. In later times, these games were celebrated in other Grecian cities, and were kept up at Delphi as late as the third century A. D.

Pythias. (See *Damon.*)

Python; a dreadful dragon, which sprang from the mud left by the flood of Deucalion, and dwelt near Crissa, on Parnassus, watching the future oracle of Delphi. Acquainted with the future, he foresaw that the son of Latona would kill him, and he persecuted her with the greatest violence. Apollo slew him with an arrow, the first day after his birth, threw his bones into a deep chasm, possessed himself of the oracle, and received from this circumstance the surname of *Pythian*, "the slayer of the Python." This fable was probably meant to indicate the power of the sun over the noxious vapors, remaining after a great flood.

Q.

Q; the seventeenth letter in the English alphabet, and one of the mutes. The ancient Latins had not this letter, but wrote *oblicus*, *locuntur*, not *obliquus*, *loquuntur*; and after it was introduced among the Romans, it was considered by some, not as a letter, but a character expressing two letters; hence some wrote *qis*, *qæret*, *qid*, while others preferred *cuis*, *cuæret*, *cuid*. The Greeks had not the letter. The Latin *q* is probably borrowed from the Phœnician and Hebrew ק (*koph*). It has been considered by many grammarians, who have treated of different languages, as a superfluous character; and in French and Spanish, which have no *k*, it has been retained in the alphabet only to express this sound. The Spaniards now write *cuanto*, not *quanto*, but have retained the *q* in *que* and *qui*, pronounced *ke* and *ki*; *qüe* and *qüi* are now written *cue* and *cui*. In the articles on the letters *G*, *H* and *K*, we have touched upon the near affinity of the aspirate and guttural sounds. The sound of *qu* is that of the guttural *k*, with the breathing sound of *v*, or the German *w*; and as the aspirate *h* (see *H*) is often put before words merely as an addition, so also is this stronger (guttural) sound *q*. For instance, we find in Ulphilas *quivan* (to live), the Latin *vivere*; the German *Qualm* (smoke) is in Dutch *walm*. It is not improbable, that in various words the sound *qu* has been changed into the sounds *w* or *v*; thus Adelung says, that the Latin *qualis* and the German *welcher*; *quis*, *quem*, *quod*, and the German *wer*, *wem*, *was* (formerly in Low Saxon *hwat*); *quando* and the German *wenn* (formerly *hwanne*), are intimately related. That the sound became changed in Latin itself, is evident by the derivation of *inquilinus* from *colere*, *coctio* and *coculum* from *coquere*. The following instance shows how the kindred sounds alternate in different languages. The *Quuerca* of Rabanus (q. v.), the Swedish *qvarka*, the Finnish *curcku*, the Icelandic *kuerkur*, is the German *Gurgel* (throat). Q, as a Roman numeral, signified 500, according to the verse—

Q velut A cum D quingentos vult numerare;

with a dash over it, 500,000. Q, as an abbreviation, stands for *quæstor*, *quartus*, *quinquennalis*, *que* (as in the famous *S. P. Q. R.*, *senatus populusque Romanus*), *quod*, &c.; *Q. TP.*, for *quo tempore*; *QVIR.*, for *quirinalia*; *Q. R.*, *quæstor reipublicæ*; and *D. N. M. Q. E.* signified *devotus numini majestatique ejus*.

Quadi; a Teutonic tribe whose ancient territory was on the Danube, extending to the Theiss on the east, and to the Carpathian mountains on the north. They waged destructive wars with the Romans, particularly under Marcus Aurelius (died A. D. 180). They cease to be heard of in the fifth century.

Quadra and Vancouver's Isle; a large island on the north-west coast of N. America, between lat. 48° 21′ and 50° 54′ N., and lon. 122° 49′ and 128° 21′ W. It is separated from the continent by Johnstone's straits and Queen Charlotte's sound towards the north, and by the straits of Juan de Fuca towards the south. The island has been little visited, but it is known to be mountainous and well-wooded. It is about 300 miles in length by 80 in breadth. The natives are numerous, and live principally by fishing. Nootka sound (q. v.), on its western coast, is the principal bay; it was discovered by captain Cook in 1778. In 1786, a factory was established here by English merchants, but the Spaniards took possession of it in 1789. It was afterwards restored to England, and received its present name from the meeting of Quadra, the Spanish officer, and Vancouver, the English agent, on occasion of completing the cession.

Quadragesima, or Quaresima. (See *Lent*.)

Quadrans; a division of the Roman *as* (q. v.); also anciently, in England, a farthing. Before the reign of Edward I, the smallest coin was a sterling, or penny, marked with a cross; by means of which a penny might be cut into halves and quarters; till, to avoid the fraud of unequal cuttings, that king coined half-pence and farthings in distinct round pieces.

Quadrant (*quadrans*, a quarter of a circle); an astronomical instrument, which serves to measure an arc of a great circle of the heavens, in order to determine the altitude of a heavenly body. Its name indicates that it consists of an arc of ninety degrees; the degrees are subdivided into smaller divisions. The quadrant is provided with glasses attached to a straight rod, through which the heavenly body is to be seen, and the position of which on the graduated arc, determines the altitude of the body. In modern times, this instrument has been improved by the superior accuracy of the graduation, and by the use of a telescope, instead of simple dioptric glasses, for sights. Instead of the quadrant, it is now more common to use an entire circle. Quadrants are movable or fixed. The former are for common use, set in a vertical plane, and are of two sorts; in the one, the glasses are attached to a side of the quadrant, and a plumb line, suspended from the vertex, plays along the graduated arc; in the other, the quadrant itself remains stationary, and the rod to which the glasses are attached, moves upon the arc. The fixed quadrants are larger, and are set in a wall of an observatory in the plane of the meridian. The observations made by them are more accurate. (See *Godfrey*, *Thomas*.)

Quadrant, *Gunter's*. (See *Gunter's Quadrant*.)

Quadrat, in printing; a piece of metal cast like the letters, to fill up the void spaces between words, &c. There are quadrats of various sizes, called *m* quadrats, *n* quadrats, &c.

Quadratic Equations. (See *Equations*.)

Quadratrix, in the higher geometry; a transcendental curve, which Dinostrates, and in modern times, Tschirnhausen, made use of to find the quadrature of the circle by approximation.

Quadrature, in astronomy; that aspect of the moon when she is ninety degrees distant from the sun; or when she is in the middle point of her orbit, between the points of conjunction and opposition, namely, in the first and third quarters.

Quadrivium. (See *Schools*.)

Quadrupeds, in zoölogy; a class of land animals, with hairy bodies, and four limbs or legs proceeding from the trunk of their bodies; the females are viviparous, or bring forth their young alive, and nourish them with milk from their teats. They constitute with man (*bimana*), the monkeys (*quadrumana*), and the cetaceous animals, the division *mammalia*. (See *Animals*.)

Quadruple and Quintuple Alliance. The natural, but undue influence, which European states have mutually exercised upon each other, has at times produced alliances more complicated than any which history elsewhere records, and which could be produced only by a combination of various interests. Alliances of this nature indicate the existence of powerful interests and counter interests, to trace which to their origin is one of the chief purposes of history. The first quadruple alliance, so called from the number of the contracting parties, was the alliance which was concluded October 28, 1666, between the states-general (Holland), Denmark, the duke of Brunswick-Lüneburg, and the elector of Brandenburg. The second was concluded at London, August 2, 1718, between Great Britain, France, and Austria, and was called quadruple because acceded to by Holland, February 16, 1719. The object of this league was to force Spain to consent to the peace of Utrecht. It continued to be so called even after the duke of Savoy and Spain had joined the alliance. The quadruple alliance of Austria, Russia, Great Britain, and Prussia, at Chaumont, March 1, 1814, originated from their coalition, which had effected the dissolution of the French empire. (See *Coalition*, and *Chaumont*.) It was less an alliance, in the diplomatic sense of the word, than an armed union for the restoration of the independence of its members. After effecting its object, it became the basis of the European political system which prevailed with little effectual opposition until 1830, having been confirmed by the congress of Vienna, the Holy Alliance (q. v.), and the congress of Aix-la-Chapelle, in October and November, 1818, when the alliance became, in a certain respect, quintuple, as France joined the union professedly for the maintenance of peace in Europe: England joined the three other powers for the overthrow of Napoleon; but when the alliance became obviously directed against the national independence which had been originally its professed object, and religious sophistry was blended with political, to deceive the people, and the right of armed interference was boldly pronounced, and in several instances carried into effect, England naturally separated more and more from the other powers in consequence of its constitutional system, until at length Canning proclaimed the principle of non-intervention. (See *Intervention*.) History will yet speak of quadruple and quintuple alliances in the great struggle between the friends of liberty and the friends of despotism. (See *Alliance*.)

Quæstor. (See *Questor.*)

Quagga (*equus quagga*). This animal, which is an inhabitant of the southern parts of Africa, is not unlike the zebra; its ears, however, are shorter, and it is not marked with stripes on its fore legs or hinder parts; its rump is of a grayish color, and its belly, legs and tail whitish. The quagga is a social animal, living in large troops, is far more tractable than the zebra, and is said to be occasionally used at the cape of Good Hope for domestic purposes. Notwithstanding this mildness of character when domesticated, it is exceedingly fearless in its native plains, and is even said to be more than a match for the hyæna, fighting desperately both with its hoofs and teeth. It will breed with the common horse; a mixed race of this kind, possessing great beauty of form, and retaining, in a great degree, the characteristic markings of the quagga, existed in England some years since. The quagga has received a variety of names from authors; thus Pennant terms it the *quacha*, Masson the *opeagha*, and Sparrman calls it by the name here adopted. It should be remarked that Edwards has mistaken it for the female zebra.

Quail (*coturnix*, Cuv.). The quails are very closely allied to the partridge, differing only in being smaller, and having a more delicate beak, shorter tail, and no spur on the legs. The quail of Europe is universally spread over that continent, and, in fact, over the whole of the old world, being found in every country from the cape of Good Hope to the North cape. These birds are deemed excellent food by the moderns, but the ancients entertained a prejudice against their flesh, from an idea that they fed upon hellebore, and were subject to epileptic attacks: *Semen veneni gratissimus cibus, quam ob causam, eam damnavere mensæ*, Plin. lib. x, cap. 23. Quails are birds of passage, appearing in Europe about May, and departing in September; they appear to winter in Africa. In some parts, however, they remain the whole year. (See the work of Buffon.) Besides the celebrity of these birds as articles of food, they have been much prized for their pugnacious propensities. Quail fighting appears to have been as common at Athens as cock fighting in more modern times. This diversion was also in high estimation in Rome, and is still pursued in some parts of Italy. In the East, and especially in China, they are also pitted against each other, after having been armed with artificial spurs. The European quail is about seven inches long; the feathers of the head are black, edged with a rusty brown. The hinder part of the neck and crown of the head are divided by a long pale-yellow line; the breast is of a yellowish red, spotted with black; the scapulars and feathers of the back are marked with a pale yellow line in their middle, and with ferruginous and blackish bars on their sides. The notes of the cock and hen quail are very dissimilar; and it is remarkable that the proportion of males much exceeds that of females. Their flesh is more juicy and delicate than that of the partridge. American quail, or partridge, as it is termed in Pennsylvania, belongs to the subgenus *ortyx*, distinguished from the former by having a larger, shorter, and more arched bill, and peculiar to America. The American quail is found from New England to Honduras. Notwithstanding there is some resemblance, in form and general appearance, between the quails of the two continents, they differ very widely in their habits; thus, instead of being a bird of passage, scarcely any of the feathered tribe appear to have so strong local attachments as the American quail. This is well known to sportsmen, who are in the habit of turning out pairs of these birds, when an unusually severe winter has destroyed the coveys in their neighborhood. The quail constructs her nest in May; this is made on the ground, and generally at the foot of a thick tuft of grass that shelters and conceals it. The materials employed in its construction are leaves and dry grass. The female lays about fifteen or twenty eggs, which are perfectly white. Wilson is of opinion that the common idea, that quails occasionally lay in each other's nests, is correct. About the beginning of September, the young birds nearly attain their full growth, and associate in flocks or coveys of various sizes, and at this time also their untiring persecution by sportsmen and trappers begins. During the end of the summer and beginning of the autumn, the well-known note of the male is every where heard; this is very similar to the words "Bob White," accompanied with a whistling sound. About the first of October, they prepare for winter, and to enter on what is termed their *running* season, when they are to be met with in swamps and thickets, instead of the open fields. The food of the quail is composed of grain, seeds, insects, &c., but their favorite articles are buckwheat and Indian corn. Like the rest of the gallinaceous tribe, the quails fly with a loud whirring sound, occasioned by the shortness of their wings and the rapidity with which they move them. During the winter, they often suffer greatly from the inclemency of the weather, and whole coveys are found frozen in spots where they had endeavored to shelter themselves. The American quail is about nine inches long, and fourteen in extent, usually weighing from seven to eight ounces. The bill is black; line over the eye, down the neck and whole chin pure white, bordered by a band of black, which descends and forms a crescent on the throat; the eye is dark hazel; crown, neck, and upper part of the breast, red brown; sides of the neck spotted with white and black on a reddish brown ground; back, scapulars, and lesser coverts, red brown, mixed with ash, and minutely marked with black; wings plain and dusky; lower part of the breast and belly whitish, marked with black arrow heads; tail ash, spotted with reddish brown. (See Wilson, *Ornithol.*, vol. vi, and Nuttall, *Ornithol.*, 647.)

Quakers, or **Friends** [the following article was written by a member of the society of Friends, and therefore expresses their opinions]; a society of Christians which took its rise in England about the middle of the seventeenth century.—George Fox (q. v.), a native of Drayton, in Leicestershire, was the first minister whose preaching was instrumental in convincing the people of those religious views which distinguish the society, and his disinterested labors were so successful, that, in a few years, a numerous society was gathered in England, and subsequently in America, where the great body of them is now found. He was born in the year 1624, and commenced his ministerial labors in 1647, being then in the twenty-third year of his age. He travelled much on foot, and, from conscientious motives, not only refused to receive any compensation for preaching, but defrayed his own expenses. The seventeenth century was distinguished by the extraordinary interest which pervaded England on the subject of religion. Many persons were awakened to an earnest inquiry, "What shall we do to be saved?" and not finding, in the most precise observance of the ceremonies of religion, the true peace, and that victory over sin which they longed for, they were induced to seek, by prayer and meditation, a nearer and more intimate communion with the God of their lives. They diligently searched the Holy Scriptures, and found in those sacred records a clear testimony borne to the important truth, that "the grace of God, which bringeth salvation, hath appeared unto *all* men." Continuing in an humble, seeking state of mind, they gradually became acquainted with its secret influences on their hearts, inclining them to virtue and holiness, and warning them against the commission of evil. As they submitted to its heart-changing operation, they experienced the bondage of sin and the power of the tempter to be broken, and received ability to live in the fear and favor of God. As George Fox was led to bear a clear and convincing testimony in his ministry to the inshining of this divine light, and to direct the people to its teachings, his doctrine met with a cordial assent in minds thus happily prepared to receive it; and to this cause we may attribute the rapid increase of the society of Friends. Being thus instructed in the things pertaining to salvation, and their understandings enlightened to see the beauty and excellency of the Christian religion as revealed in the Holy Scriptures, and knowing by experience the blessedness of being "born again of the Spirit," they felt the love of God constraining them to declare unto others those things which the Lord had done for their souls. Feelings of this character, as well as the belief that they were called of God to the ministry of the gospel, induced many of them to engage in this solemn undertaking, and, without any prospect or hope of pecuniary reward, to travel extensively in England and foreign countries, to promulgate the glad tidings of life and salvation. Among the eminent ministers of the society, we may notice George Fox, William Penn, Robert Barclay, George Whitehead, Stephen Crisp, Isaac Pennington, John Crook, Thomas Story, &c. The infant society was soon subjected to the rigors of a severe persecution, sometimes without the pretext of law, and at other times, under cover of legal enactments, made either in Roman Catholic times, or since the reformation against non-conformists. The principal subjects which led to the persecution of the early Quakers were, their testimonies against oaths, a hireling ministry, tithes, and other ecclesiastical demands; the use of the singular pronouns when addressing only one person; their refusal to take off the hat as a compliment to men; and the faithful maintenance of their religious meetings. George Fox was one of the first who was imprisoned. In 1649, he was confined in Nottingham gaol, for opposing a minister on a point of doctrine; and, in the following year, being arraigned before two justices in Derbyshire, he exhorted those about him to tremble at the word of the Lord. One of the justices, scoffing at the pious advice of the minister, deridingly gave him and his friends the appellation of *Quakers*, which has since been generally applied to them by the world, though they themselves, as well as their successors, have adopted the name of *Friends*. The violence of persecution only tended to confirm the faith and strengthen the bond of union among the members of the rising society. Its ministers, fearless of suffering, and ardently devoted to the cause of Christ, boldly preached their doctrines both publicly and privately, and were not deterred from their gospel labors by the severest punishments. The members, with one accord, united in strengthening each other's faith, encouraging all to continue steadfast to the religion they had espoused, and to endure with patience, and even cheerfulness, the loss of their estates, imprisonment, fines, whipping, banishment from home and country, and even death itself, rather than renounce their principles or violate their testimonies. The spirit of intolerance, which caused the society so much suffering in England, spread its baneful influence to America, and produced its natural results there also; but in neither country could it shake the constancy of the sufferers, nor induce them to relinquish their conformity to apprehended duty. Their patient submission to the wrongs inflicted on them, the integrity and blamelessness of their lives, their probity, and the peaceable principles which they held, not only wrought conviction on the minds of many, and thus added to their numbers, but also had a favorable influence on those in authority, who saw that severity served rather to increase and establish the society than to arrest its progress. From these causes, as well as the diffusion of more liberal and enlightened views on the subject of religious liberty, acts were successively passed by the British parliament, relieving Friends from the oppression under which they suffered, and tolerating their mode of worship, marriage, &c., as well as some of their testimonies. The same liberal policy has been continued by our own government, so that at present they suffer no other molestation in this country, than the occasional distraint of their property to satisfy demands made in lieu of military services, which they cannot conscientiously pay. In England they are subject to distraints for tithes and other ecclesiastical demands, which, with a few for military services, amount to about sixty thousand dollars annually. The first Friends that came to America were two female ministers, who landed at Boston about the year 1656. Others occasionally visited this country at subsequent periods; and, a number of persons having embraced the principles of the society, George Fox came over in 1672, and settled meetings of discipline, for the care of the poor and the preservation of good order in the church. At this period, there were meetings of Friends in most of the colonies along the seacoast from Massachusetts as far south as the Carolinas. In 1682, William Penn arrived in the river Delaware with a large number of his brethren, who founded the city of Philadelphia, and settled themselves there or in the adjacent counties; and in each successive year their numbers were increased by new emigrants from the mother country, until they formed a large and respectable colony. Most of the ancient families in Philadelphia and its vicinity trace their origin to these settlers, and many of the noblest institutions of that city owe their rise to the liberality and benevolence of the society of Friends. In attempting to give a view of their testimonies and doctrines, the limits, necessarily prescribed in an Encyclopædia, forbid any thing more than a brief sketch. The society believes that, under the gospel dispensation, all wars and fightings are strictly forbidden; the positive injunction of our blessed Savior Jesus Christ, "Love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you and persecute you," entirely precluding the indulgence of those malignant passions, from which only such contests can arise. They also apprehend that the express command of our Lord and his apostle James, "Swear not at all," prohibits the Christian from the use of judicial as well as other oaths, and that in all things his word should be yea and nay, "for whatsoever is more than this cometh of evil." As Jesus Christ declared to his disciples, that without him they could do nothing, and as he alone is the Head and Governor of his church, the society believes that a special call and qualification from him, by the influences of his Spirit on the soul, are necessary to constitute a true minister of the gospel; and that as he commanded his disciples, "Freely ye have received, freely give," so the faithful minister of Christ cannot make merchandise of the gift received, nor decline the exercise of it because he may not be compensated by a pecuniary reward. It being generally admitted that the baptism of water and a participation in the outward supper are but the signs of that essential baptism of the Holy Ghost, which our Lord Jesus Christ instituted, and of the communion of saints to which he alludes, when he declared to the apostle John in the Revelation, "Behold, I stand at the door and knock; if any man hear my voice and open the door, I will come in and sup with him, and he with me;" and as this spiritual baptism and communion are not dependent on the outward rites,—the society does not consider these as necessary, but presses on its members a submission to the effectual operation of the Holy Spirit, by which the obedient soul is brought to the living experience of the substance, of which those ceremonies are but the external symbols. As simplicity and gravity in dress and demeanor are consonant with the Christian character, the society recommends its members to observe plainness in their apparel and the furniture of their houses, an adherence to the use of the singular pronouns, "thee and thou," when addressing only one person, and the disuse of the customary salutations and tokens of obeisance. Its conduct in these respects arises from the apprehension that the contrary practices originated in the pride of the human heart, and have a tendency to foster that haughtiness and self-conceit, which it is so much the business of the Christian to mortify and subdue. The doctrines of the society may be stated in a few words; in doing which, it will be proper to observe that its members prefer the use of such terms as are to be found in the Holy Scriptures. They believe in God, the Father; in Jesus Christ, his beloved and only-begotten Son, and in the Holy Ghost, Comforter or Spirit of Truth, one true and living God, blessed for ever. That these are the holy Three that bear record in heaven; to wit, the Father, the Word, and the Holy Ghost, and that these three are one. That in the fulness of time our Lord and Savior Jesus Christ took flesh, was conceived by the Holy Ghost, and born of the Virgin Mary at Bethlehem in Judea; that he was crucified under Pontius Pilate, voluntarily surrendering himself to the ignominious death of the cross, and suffered for our sins, the just for the unjust, that he might bring us to God; thereby becoming the one, great, universal offering and atonement for all mankind. Hence "he is the propitiation for our sins, and not for ours only, but for the sins of the whole world;" and as each individual submits to the power of the Holy Spirit, renewing and changing the heart, his past transgressions are freely forgiven and blotted out for Christ's sake, and he comes fully to partake of the benefits of that redemption which was purchased for us by the coming, and sufferings, and death, of the adorable Son of God. In expressing themselves concerning this glorious display of the love of God to fallen man, they include a full belief in the deity and manhood of Jesus Christ; in his miraculous birth, holy life, mighty miracles, death, resurrection, and ascension into glory in the heavens, where he is at the right hand of God, as our Redeemer, Mediator and Advocate with the Father, and whence he shall come to judge the world in righteousness, at the great and final day of judgment. As the whole human race is naturally fallen, degenerate and spiritually dead, of themselves utterly incapable of doing any thing that will tend to their salvation, so the society believes that all have need, and are the objects, of that redemption which is freely offered for their acceptance through Jesus Christ our Lord. That "the grace of God, which bringeth salvation, hath appeared unto *all men*; teaching us, that, denying ungodliness and worldly lusts, we should live soberly, righteously and godly in this present world;" and that obedience to its dictates is essentially necessary to enable us to persevere in the work of pure and undefiled religion, and finally to receive the end of our faith, even the salvation of our souls. That there shall be a resurrection, both of the just and the unjust, according to the declaration of our blessed Lord, "The hour is coming, in the which all that are in the graves shall hear his voice, and shall come forth; they that have done good, unto the resurrection of life, and they that have done evil, unto the resurrection of damnation,"—and that, according to the testimony of the apostle Paul, "It is sown a natural body, and raised a spiritual body." Although Friends do not call the Holy Scriptures the Word of God, but apply this epithet exclusively to the Lord Jesus Christ, yet they believe that these sacred writings are the *words* of God, written by holy men, as they were moved by the Holy Ghost; that they are profitable for doctrine, for reproof, for correction, for instruction in righteousness, that the man of God may be perfect, thoroughly furnished unto all good works; and that they are able to make wise unto salvation through faith which is in Christ Jesus.

They also hold them to be the most authentic and perfect declaration of Christian faith, and the only fit outward judge and standard in all religious controversies; and that whatever, either in doctrine or practice, any profess or do, though under pretence of the guidance of the Holy Spirit, if it be contrary to, or inconsistent with, the testimony of the Holy Scriptures, is to be esteemed a delusion and error. The society is governed by its own code of discipline, which is enacted and supported by meetings of four degrees, for discipline, viz. preparative, monthly, quarterly and yearly meetings. The preparative digest and prepare the business for the monthly meetings, in which the executive power is principally lodged, subject, however, to the revision and control of the quarterly meetings. These are usually composed of several monthly meetings, which are accountable to the quarterly, and over which it exercises its jurisdiction and care. The yearly meeting comprises a number of quarterly meetings, which are subordinate and accountable to it, and subject to its supervision and direction. Its authority is paramount, and it possesses the sole power to make or amend the discipline. There are at present ten yearly meetings, viz. London, Dublin, New England, New York, Philadelphia, Baltimore, Virginia, North Carolina, Ohio, and Indiana, which include a total of about one hundred and fifty thousand members. (For further information, see Sewell's and Gough's *Histories of the Quakers*, G. Fox's *Journal*, Barclay's *Apology*, Tuke's *Principles*, Bates's *Doctrines of Friends*, Evan's *Exposition*, Gurney's *Peculiarities*, &c.)

Quand même; an ultra-royalist phrase in France, taken from a cry common in La Vendée, during the insurrection in that quarter in the revolution: *Vive le roi, quand même*, Long live the king, even though (or at all events). The application of it made by the ultras, however, has been, that they would adhere to the principles of ultra-royalism, though the king himself should recede from them; and the phrase has become quite common, being used in such connexions as the *quand même* principle. *Quand même* was, and perhaps still is, the motto of the most violent ultra paper.

Quantity and **Quality** are two forms of thinking, considered to be among the original ideas of the human understanding, or categories. (See *Kant.*) *Qualities* are the interior properties of an object, which are observable in it, without comparison with other objects. By *quantity*, however, we understand that property of an object by which it can be increased and diminished, and estimated according to a given measure. Quantity, in connexion with time, produces the idea of number, inasmuch as we represent to our mind a successive repetition of unities. In logic, the ideas of quality and quantity are of great importance, and are treated with much acuteness by Kant.

Quantity, in verse. (See *Prosody.*)

Quantz, John Joachim, a flute-player, chiefly known as teacher on the flute to Frederic the Great, was born in Hanover, in 1697. His father was a smith. After holding several appointments, he was invited, in 1741, by the king of Prussia, to Berlin, and remained with this monarch until his death, in 1773. He did much to improve his instrument, and is said to have composed 299 concertos and 200 solos for his royal pupil, of which few came before the public. Frederic was very fond of him, and caused a monument to be erected to him after his death.

Quarantine; the period during which a ship, coming from a port suspected of contagion, or having a contagious sickness on board, is forbidden intercourse with the place where she arrives. The term is derived from the Italian *quarantina*, a space of forty days, because originally that was the fixed period for all ships under such circumstances. But the time of a ship's detention is now very various, according to the exigencies of the case.

Quarles, Francis, an English poet, born in 1592, near Rumford, in Essex, was educated at Cambridge, and entered at Lincoln's Inn. He was under-secretary to archbishop Usher, in Ireland, from which country he was driven, with the loss of his property, by the rebellion of 1641, and was appointed chronologer to the city of London. At the commencement of the civil wars, he wrote a work entitled the Loyal Convert, which gave offence to the parliament; and, when he afterwards joined the king at Oxford, his property was sequestrated, and his books and MSS. plundered. He was so much affected by his losses, that grief is supposed to have hastened his death, in 1644. Of the works of Quarles, in prose and verse, the most celebrated is his Emblems, a set of designs in prints, illustrated by verses. A great part of them are borrowed from the Emblems of Hermannus Hugo, but the verses are his own, and, in the midst of much false taste and conceit, contain frequent bursts of fancy and strokes of pathos.

Quartan Ague. (See *Fever*.)

Quarter; the fourth part of any thing, the fractional expression for which is ¼. *Quarter*, in weights, is generally used for the fourth part of a hundred weight avoirdupois, or 28 lb. Used as the name of a dry measure, *quarter* is the fourth part of a ton in weight, or eight bushels.

Quarter, in heraldry, is applied to the parts or members of the first division of a coat that is quartered, or divided into four quarters.

Quarter of a Point, in navigation, is the fourth part of the distance between two cardinal points, which is 2° 48′.

Quarter; that part of a ship's side which lies towards the stern, or which is comprehended between the aft-most end of the main chains and the sides of the stern, where it is terminated by the quarter-pieces.

Quarter Master, in the navy; an inferior officer appointed to assist the mates in their several duties.

Quartering, in heraldry, is dividing a coat into four or more quarters or quarterings, by parting, couping, &c., that is, by perpendicular and horizontal lines, &c.

Quarters imply the several stations where the officers and crew of a ship of war are posted in time of action.

Quarter Sessions. (See *Courts*, vol. iii, p. 589.)

Quartering of Soldiers. It was formerly taken for granted that it was the duty of subjects to give shelter and support to soldiers in the pay of their sovereign, both on their march and in their winter quarters. An ordinance was made on this subject in France, under Louis XII (1514); but this obligation of the citizens was abolished entirely, by the law of July 8, 1791, in regard to garrison troops; and soldiers on the march were to be entitled only to lodging, fire and light; thus the former numerous privileges of quarters, belonging to the nobility and other classes, were set aside. In Germany, this subject formerly gave rise to much perplexity, on account of the double relations between the emperor and empire, and the territorial sovereigns and their subjects, and the particular obligations of the imperial cities towards the emperor; especially when Wallenstein, in the thirty years' war, began the system of requisitions by which he maintained his army not only at the expense of their enemies, but also at the expense of the allies of the emperor his master. The result of the consequent difficulties was, that, in treaties of peace and the laws of the empire, provision was made to prevent similar oppressions of the states of the empire. The quartering of troops became a most heavy burden on the people of Germany, when, in consequence of coalitions against revolutionary France, French armies, by degrees, inundated all the German territory, and required, both in hostile and allied states, sufficient means for their entire support, and generally still more. Many difficulties were created by this state of things. Several German works have been written on the proper distribution of the burden of quartering soldiers, and the indemnification for it. The constitution of the U. States (amendment 3) says, "No soldier shall, in time of peace, be quartered in any house, without the consent of the owner; nor in time of war, but in a manner to be prescribed by law."

Quarteroons; descendants of a mulatto and a white. The descendants of a quarteroon and a white are called *quinteroons*.

Quartetto; a musical composition for four instruments, generally stringed instruments, in concert (i. e. two violins, one viol, and one violoncello); also a composition for four voices, with or without accompaniment. In instrumental quartettos, Haydn (q. v.) opened a new path. Mozart, Beethoven, the two Rombergs, Spohr, Ries, Onslow, Feska, followed. The simple charm of harmony and melody gives the chief effect to the quartetto. The quartetto is better the more independent are the four voices; the predominance of one voice gives rise to the solo quartetto. Quintettos and sextettos, for stringed instruments, are often reckoned among the quartetto music.

Quartz; the name of a well-known mineral species, which surpasses all others in the extent of its distribution. It is also one of the most comprehensive in the varieties it embraces, which are especially numerous as respects color, lustre and fracture. Its contents have very improperly been swollen, however, by the introduction of many substances which consist of mixtures of quartz with other species; and the difficulty of forming a correct idea of this group of minerals has been enhanced by their being separated into several species and sub-species, as has been done in certain treatises on mineralogy. We shall endeavor, in the first place, to take a scientific view of quartz; after which we shall point out those varieties which have, from various causes, obtained distinct appellations, together with the mixtures of quartz with other minerals, usually considered as varieties of the species; and, finally, the varieties which are employed in the arts. The crystals of quartz are, for the most part, regular six-sided prisms, terminated at one or both of their extremities by six-sided pyramids, the faces of which correspond to the sides of the prism, and meet under an angle of 141° 40′. It sometimes happens that the prism intervening between the two pyramids is very short, or even extinct; in which case the form becomes the dodecahedron, with isosceles triangular faces. In the six-sided prism with pyramidal terminations, we often observe the solid angles, situated between the prism and the pyramid, replaced by rhomboidal planes. The alternate faces of the prism are striated horizontally. The primary form is a rhomboid of 94° 15′ and 85° 45′, parallel to whose planes cleavages may be obtained, as also to the planes of the dodecahedron, with isosceles triangular faces, which might also be regarded as the primary form of the species; but the former figure is preferred on account of its simplicity. Lustre vitreous, inclining, in some varieties, to resinous; color white prevalent; among the brightest colors are violet-blue, rose-red, clove-brown and apple-green. Dark brown and green colors are generally owing to foreign admixtures. Streak white; transparent, translucent, frequently opaque, but never, perhaps, unless occasioned by other minerals; hardness between feldspar and spinelle; specific gravity 2.69. The crystals often present macles, and sometimes we observe larger crystals, apparently made up of innumerable smaller ones, all of which are so aggregated that their similar faces coincide as respects direction. Implanted globules, reniform and stalactitic shapes, are other modes of occurrence with compound varieties of this species. These have smooth, granulated and drusy surfaces; composition (mechanical) columnar, often impalpable, and frequently a second time composed into granular or curved lamellar masses. The massive varieties present a granular or columnar, and often an impalpable composition, in which case the fracture becomes conchoidal and splintery. Sometimes a second composition produces indistinct granular or thick lamellar masses. Certain very thin columnar compositions, if cut *en cabuchon*, parallel to the fibres, show an opalescent light. We have pseudomorphous crystals, also, of this species, in the shape of cubes, octahedrons, and various other forms, derived from fluor, calcareous spar, gypsum, &c., besides which, quartz occurs in globular and tuberose masses, formed in vesicular cavities, and also in plates and pebbles. The principal varieties of quartz, which are known by distinct names, are the following: 1. *rock crystal*; 2. *smoky quartz*; 3. *yellow quartz*; 4. *amethyst*; 5. *siderite*, or *blue quartz*; 6. *rose quartz*; 7. *milky quartz*; 8. *irised quartz*; 9. *common quartz*; 10. *fat* (*greasy*) *quartz*; 11. *flint*; 12. *hornstone*; 13. *Lydian stone*; 14. *floatstone* (*swimming stone*); 15. *fibrous quartz*; 16. *radiating quartz*; 17. *chalcedony*; 18. *carnelian*; 19. *chrysoprase*; 20. *agate*. Rock crystal is applied to the transparent and colorless crystals, and more particularly to those of a large size. Smoky quartz consists of those crystals and crystalline masses which are translucent and of a brown color. Yellow quartz, sometimes called, also, *Bohemian* or *Scottish topaz*, is transparent, and of various shades of yellow. Amethyst, also in crystals, and for the most part nearly transparent, is of every shade of violet. Siderite, or blue quartz, is never in regular crystals, but usually compact, and of an azure-blue color. Rose quartz is confined to translucent massive varieties, of a delicate rose-red color. Milky quartz is also massive, having an uneven fracture, is translucent, and of a milk-white color. Irised quartz embraces such crystallized varieties, as exhibit in patches, at or beneath the surface, the colors of the rainbow. Common quartz differs from milky quartz simply in being destitute of the milky whiteness of that variety, or in having an inferior degree of whiteness, and more of a vitreous lustre. Fat or greasy quartz differs from common quartz merely in lustre, which, instead of being vitreous, has the appearance of having been immersed in oil. Flint has a more compact texture than common quartz, is dull, only translucent on the edges, of a brownish color, and breaks with a conchoidal fracture. Hornstone closely resembles flint, from which it can scarcely be distinguished, except in its conchoidal fracture, which is much less distinct. When replacing the fibres of wood, it is called *woodstone*. Lydian stone, sometimes called *flinty slate*, differs from flint chiefly in having a darker color, less translucency, and a fracture somewhat slaty; when black, it is often called *bassanite*. Floatstone consists of a delicate tissue of minute crystals, visible only under a powerful magnifier. Owing to the cavities it contains, it sometimes will float on water. Fibrous quartz consists of those varieties which are in distinct, parallel concretions. Radiating quartz is like fibrous quartz, except that the fibres diverge from a common centre, and resemble the radii of a circle, instead of being parallel. Chalcedony includes those varieties of radiating quartz, where the thickness of the individuals becomes so much diminished as to render them nearly or altogether impalpable; its masses generally offer a mammillary or stalactitical surface, and the lustre on freshly-broken surfaces is feeble. Carnelian differs from chalcedony merely in having a blood-red color. Chrysoprase also resembles chalcedony in composition, excepting that the individuals of which it is made up, appear to be grains instead of fibres; its color is apple-green, from the oxide of nickel. Agate implies the occurrence of two or more of the above varieties, existing together in intimate union; or it may be applied to a single variety, provided it offers different colors in the same specimens. Those substances which have formerly been included under quartz, and which are mixtures only of this mineral with other species, are the following: 1. *cat's eye*; 2. *avanturine*; 3. *prase*; 4. *plasma*; 5. *heliotrope*; 6. *iron-flint*; 7. *Compostella hyacinth*; 8. *jasper* (*red, brown, striped* and *porcelain*); 9. *jasper-agate*; 10. *Mocha stone*; 11. *Venus-hair agate*. Cat's eye consists of transparent quartz traversed by exceedingly delicate parallel fibres of asbestus; when cut *en cabuchon*, it exhibits, as its position is altered to the eye, a peculiar play of light upon its surface, resembling the changeability of light seen in the eye of a cat. Avanturine is quartz penetrated by small golden-colored spangles of mica. Prase is quartz penetrated by green fibres of hornblende, which are often so small as to escape detection by the naked eye, and their presence is only discoverable from the green color they impart. Plasma is a variety of chalcedony, colored leek-green by some substance not yet examined. Heliotrope is likewise a variety of chalcedony, but colored by green earth, and occasionally dotted with minute portions of red jasper. Iron flint consists of quartz, intermingled throughout with oxide of iron. The Compostella hyacinth is a red variety of iron flint, in regular six-sided prisms, with pyramidal extremities, which occurs imbedded in gypsum. Jasper differs from the two last varieties in being massive, and in containing variable proportions of clay. Red and brown jasper simply allude to the color of the compound. Striped jasper appears to contain a larger portion of clay, and is distinguished on account of its striped delineations. Porcelain jasper is regarded as siliceous slate altered by heat, and is found in the vicinity of coal-mines. Those varieties which are found in rounded masses, and which, from the concentric layers of which they consist, appear to have been formed in open spaces, are called *Egyptian jasper*. Jasper agate consists of those varieties of jasper in which several colors are so arranged as to produce an agreeable effect. Mocha stone consists of agate, containing appearances of vegetable filaments, which have been occasioned through the infiltration of iron and manganese through its crevices. Venus-hair agate consists of quartz traversed by delicate hair-shaped crystals of any kind. The most transparent varieties of quartz are pure silex, which, according to Berzelius, contains 49.70 silicon and 50.30 oxygen. Hornstone, flint and chalcedony agree with it in composition. Several varieties contain small quantities of alumine, lime, oxide of iron, &c. Chrysoprase contains 0.01 oxide of nickel. Quartz is infusible before the blow-pipe, and shows itself to be pure silex. It is dissolved by soda easily, and with effervescence. Two pieces rubbed together emit an empyreumatic odor, and a phosphorescent light. Crystals of quartz may be obtained from a solution of silica in fluoric acid, or in potash diluted with water. The fluid from which crystals of this species are formed, in geodes and other natural cavities of rocks, has been observed to be chiefly water. With respect to the distribution of quartz, and which we have remarked above to be the most abundant mineral known, it may be said that common quartz enters into the regular mixture of various rocks, of granite, gneiss, mica slate, topaz rock, &c. In others, it occurs in single crystals and in grains, as, for instance, in porphyry, and is frequently met with in the vesicular cavities of amygdaloidal rocks. In these last situations, in particular, are found the finest varieties of chalcedony, carnelian, of jasper and agate. Hornstone forms globules and irregular veins in compact limestone; and flint occurs in a similar manner, but disposed through vast beds of chalk. Quartz, also, occurs in rocks, of which it does not form a regular ingredient; sometimes in masses that are open in their interior, and lined with crystals of enormous size. It also exists in beds by itself, as in quartz-rock, and some varieties of sandstone. Striped jasper and flinty slate form, also, particular beds. The varieties prase and chalcedony, as well as amethyst, are often found in beds of iron ore. River sand, and that of extensive plains, where it is sometimes so fine as to drift before the wind, are formed chiefly of quartz. Common quartz, and several other varieties, are spread all over the earth, but certain varieties are confined to a few localities. The finest and largest rock crystals are found in the Alps of Salzburg, the Tyrol, Switzerland, Dauphiny, Piedmont and Savoy; also in the isle of Madagascar, Ceylon and Brazil. About 100 years ago, a great drusy cavity, lined with these crystals, was opened in Zinken, which afforded 1000 cwt. of rock crystal, and, at that early period, sold for $30,000. One crystal weighed eight cwt.; others from four to five cwt. A mountain, not far from Hanover, in New Hampshire, has afforded rock crystal in large vaults, after the manner in which it occurs in the Alps. One of the largest of these crystals is in the mineralogical collection of Dartmouth college. But the most beautiful rock crystals occurring in the U. States are the small, transparent, doubly acuminated prisms found at lake George, on Diamond island, at Fairfield, Bristol, and various other places in the state of New York. These crystals belong to the transition limestone, but are often found loose in the soil. They rarely exceed two inches in length by one in diameter, from which size they descend to dimensions so minute as scarcely to be discoverable by the naked eye, and yet retaining the perfection, as to faces and transparency, of the larger crystals. The Alps furnish the handsomest specimens of smoky quartz. This variety has, of late, been brought, in large crystals and crystalline masses, from Nova Scotia, and is occasionally found about the Notch of the White mountains, in N. Hampshire, as well as at Paris, in Maine. The yellow quartz comes from Brazil and Bohemia. A variety, intermediate between the smoky and the yellow, occurs at Cairngorm, in Scotland. Amethysts, of various colors, are brought from Brazil, but those of the finest colors come from Ceylon, India and Persia. A variety, intermediate between amethyst and smoky quartz, is found in Siberia. Amethyst also abounds in Transylvania and Hungary. Few localities of this beautiful variety are known in North America. Nova Scotia affords it in limited quantity; and a spot near Bristol, in Rhode Island, deserves to be mentioned for the fine crystals it has produced. Rose quartz occurs at Rabenstein, in Bavaria, and in Siberia; but no locality produces in so great perfection as that at Paris, in Maine. It also exists at Acworth, in New Hampshire, Topsham (Maine), and at Southbury, in Connecticut. Prase comes from the mining district of Schwartzenberg, in Saxony, and from Cumberland, in Rhode Island. Smalt-blue chalcedony, sometimes in pseudomorphous crystals, occurs at Tresztyan, in Transylvania; the stalactitic shapes are found in Iceland and the Faroe islands in amygdaloid, at Hüttenberg and Loben in Carinthia; also in Hungary, Scotland and Cornwall. Carnelian is brought from Arabia, India, Surinam and Siberia. Chrysoprase exists at Kosemütz, in Silesia, and at Newfane, in Vermont. At this last-mentioned locality are found small prismatic crystals of quartz, deeply tinged by oxide of nickel. Chalcedony and carnelian are occasionally found, constituting very handsome agates, near Deerfield, in Massachusetts, and at Southbury, in Connecticut; they are also brought from Nova Scotia—in each of which places they occur in trap. Plasma is found in Moravia, and in Bavaria. Flint is common in England, France, Poland, and Spain, but does not exist in North America. Hornstone is abundant in many countries; in the U. States, it exists at numerous localities in the state of New York, and in the Western States generally. Flinty slate forms beds, and occurs in pebbles, in Bohemia, Silesia, Saxony, in the Western States of the U. States, and in the Canadas. Fibrous quartz is found in the Hartz; cat's eye in Ceylon, and the coast of Malabar; and avanturine at the cape de Gat, in Spain. Heliotrope was formerly brought from Ethiopia, but is now generally obtained from Bucharia, from Tartary, and Siberia. Iron flint, or ferruginous quartz, is frequent in the iron-stone veins of Saxony, Bohemia, Hungary, Transylvania, &c.; it has also been found at Pittsfield, in Massachusetts, and at Staten island, near New York. The Compostella hyacinth occurs near Compostella, in Spain. Striped jasper is found in Siberia, at Grandtstein, in Saxony, at Ivybridge, in Devonshire; the brown Egyptian jasper comes from the banks of the Nile; the red variety from Baden, also from the town of Saugus, near Boston, in Massachusetts. Several varieties of quartz are of important use in the arts and manufactures, and have long been employed for purposes of decoration and utility by mankind. The ancients regarded rock crystal as petrified water; they esteemed it, particularly, for the fabrication of vases, especially when it could be procured in large pieces. Such were the two cups which Nero dashed to pieces when he received the news of the revolt which caused his ruin, one of which had cost him a sum equal to $3000. At present, it is esteemed, not only for cups, urns, chandeliers, but for seals, spectacle glasses, and optical instruments. Amethyst takes a fine polish, and is much employed in jewelry. Its color, when dark blue, is well adapted to that of gold, in which metal it is always set. The ancients were much in the habit of engraving upon this variety of quartz. The rose quartz is cut into vases and cups, and, when of a delicate color, and free from flaws, is highly esteemed. The yellow quartz is one of the most frequent stones employed for watch seals, having almost entirely supplanted the carnelian, which was formerly so much in vogue; it is called *topaz* by the jewellers. Chalcedony receives a high polish, exhibiting a slight degree of unctuosity. The ancients have left us many beautiful specimens of this variety of quartz, wrought into cameos and cups. They obtained it from the region of the Nasamones, in Africa, and from the environs of Thebes, in Egypt. The Japanese cut an immense quantity of carnelian into the form of the fruit of the olive, which they perforate, to be worn as beads. The carnelians, which are sold at Bombay, are brought from the province of Guzerat, in India, and the finest pieces come from the gulf of Cambay. Lapidaries distinguish two varieties of carnelian, viz. those having a pale color, with a tinge of yellow, and those of a lively and deep-red color. The last are the most rare, and the most highly esteemed, also, on account of their beauty. The Japanese are said to possess the art of heightening the color of the pale carnelians. What is called *white carnelian*, is simply chalcedony. The carnelian was much in vogue among the Romans; and the moderns possess numerous specimens of ancient workmanship in this stone. The sardonyx (an intermixture of chalcedony and carnelian, the colors fading gradually together, and not arranged in distinct lines) was also in high estimation, in early times, and still continues to be employed in jewelry. The onyx, or banded agate, which exhibits its two, three or more colors, disposed in parallel lines, constituted the most valuable material for the exercise of the glyptic art, as the workman was enabled to make use of the different colors to represent his subject in a natural manner; for example, the white and the red of chalcedony and carnelian were devoted to the representation of human flesh, while black, green, yellow, &c., were appropriated to drapery and other parts of his design. Among the finest cameos of ancient execution, may be mentioned the following, now preserved in the royal library of Paris: the Apotheosis of Augustus; the Mysteries of Ceres and Bacchus; the Apotheosis of Germanicus (which is engraved upon an onyx of four differently colored bands, and in which Germanicus is represented as borne on the wings of an eagle); Tiberius; a Quarrel between Neptune and Minerva. The onyx, as well as the heliotrope and agatized wood, are also cut into thin plates for various kinds of inlaid work. The most important applications of this species to useful purposes, depend upon its being composed of silex. Quartz enters into the composition of glass, both white and colored. It is added to the mass of porcelain, in the state of an impalpable powder, and forms part of the paste, also, in other kinds of pottery. It is used as a flux in the melting of several kinds of ores, particularly those of copper, and in other metallurgical processes. The use of flint in gun-locks is well known. Lydian stone is employed for trying the composition of mixtures of gold and silver. Sandstone yields various applications for architectural and other purposes, as the construction of melting-furnaces, mill-stones, &c. A variety of sandstone from Villa Rica, in Brazil, which is flexible, deserves to be spoken of in this place. Its flexibility is probably owing to scales of mica disseminated through its mass. Sand, with slaked lime, forms mortar. It is also used, in some countries, for the improvement of roads.

Quassia. The *quassia simaruba* is a tree of moderate size, inhabiting various parts of intertropical America, in a sandy soil. The bark, both of the trunk and roots, is of a pale yellow color, and gives out a yellowish, milky and bitter juice. The leaves are alternate, very large, and pinnate, composed of alternate and almost sessile leaflets, and destitute of a terminal one. The flowers are monœcious, and disposed in large axillary panicles; and the fruit is composed of five capsules, each having the form and size of an olive. The bark is the purest bitter known, and has long been employed by the inhabitants of Guiana. It is found, in commerce, in the form of long, rolled strips.—Th

Q. amara is a lofty tree, not unlike the common ash in its general appearance, inhabiting the same countries. The flowers are in terminal recemes, and of a bright red. All parts of the tree are intensely bitter, but the bark is now esteemed the most powerful. Quassia has no sensible odor. Its taste is that of a pure bitter, more intense and durable than that of almost any other known substance. It is said to be sometimes used in brewing malt liquors, as a substitute for hops.

Quatrain, in versification; a strophe of four verses; for example, the two first strophes of a sonnet; but the quatrain may form an independent whole.

Quatre-Bras and Ligny, Battles of, on June 16, 1815. These two battles are to be considered as the first act of the great and bloody drama of Waterloo. (q. v.) Napoleon's plan, at the opening of the campaign of 1815, was to fight his enemies singly, as he felt himself unequal to meet their combined forces. The chief purpose of his movements, therefore, was to anticipate their concentration. The Russians and Austrians, yet on their march towards the Rhine, might be left out of the calculation; but Wellington, with 102,000 British, Netherlandish, and Brunswick troops, and Blücher, with 120,000 Prussians, were near the French frontiers, between Brussels and Liege, yet in detachment cantonments, on account of the difficulty of obtaining provisions. Their united forces were much superior to those of Napoleon, which, according to the French accounts, amounted to 150,000. It was, therefore, necessary for him to prevent the union of Wellington and Blücher, and to beat them separately. Several circumstances held out a prospect of success: he was perfectly acquainted with the ground, could determine how much time was necessary to concentrate the different corps of the enemy; and Blücher and Wellington would need at least two days to effect a union. Blücher, as the most hasty, was to be first attacked, and driven back to the Rhine; after which it would not be difficult to beat the more cautious Wellington. The calculations seemed excellent, but were not successfully accomplished. Napoleon found the enemy, on the morning of June 15, yet apparently in perfect quiet. His rapid advance, in three columns, over the Sambre, towards Charleroy, was equivalent to a surprise. The first Prussian corps, under general Ziethen, forming, as it were, Blücher's advanced guard, retired, according to standing orders, with equal skill and coolness, though not without considerable loss, towards Fleurus, gaining time, as had been intended, to concentrate the other corps, and prepare for action in the rear of Fleurus. Towards noon, Napoleon, then at Charleroy, developed his plan more fully. On the road leading north from Charleroy to Brussels, which is thirty miles distant, lie the positions Gosselies, Frasnes, Quatre-Bras (a hamlet consisting of a few houses, where the road from Nivelles to Namur crosses, in a south-easterly direction, that to Brussels), Jemappes and Waterloo. On this road, marshal Ney was ordered to advance with the first and second divisions, and the cavalry belonging to them (42,000 strong), to Quatre-Bras, to drive every thing before him, and to prevent, at any sacrifice, the approach and junction of Wellington, who was expected to advance from Brussels. Ney, therefore, commanded the left wing of the French army, and formed the wedge which Napoleon proposed to force between the British and Prussian armies, while he threw himself upon Blücher. Ney's charge seems to have been a difficult one: it appears, from the complaints and the justifications of his conduct, that the emperor, by a certain indistinctness in his orders, placed him in the disagreeable situation of being obliged to act according to circumstances. Ney executed his orders literally; that is, he advanced, on the 15th of June, as far as Frasnes, his outposts being beyond that place, in the direction of Quatre-Bras, where they encountered an advanced post of the prince of Orange's corps, which prince Bernard of Weimar had thrown forward from Quatre-Bras. This post was maintained; and night coming on prevented any examination of what was passing behind it. During the whole day, Ney had heard a warm cannonade in his rear (caused by the action between Vandamme, Grouchy and the first Prussian corps near Fleurus), which forbade him to calculate on a very rapid advance of the French. This circumstance induced him to act with caution: he remained at Frasnes. It cannot be doubted that the brave resistance of the first Prussian corps, which Vandamme and Grouchy were not able to drive back quickly enough, was unexpected by Napoleon. He had probably expected to penetrate beyond Fleurus, on the 15th, with his main body. On the night of the 15th, the British forces, sensible of Napoleon's object, advanced on the road from Brussels towards Quatre-Bras, in order, if possible, to support the Prussians; and Blücher got his first, second and third divisions in position to the north of Fleurus, having the British on his right, and expecting his fourth division, under Bülow, from Liege. His position was on a chain of heights imperfectly covered by the Ligny, a small stream, and dependent upon the possession of the villages St. Amand, Ligny, Tongrines and Sombref in front: in the rear it was intersected by the road from Quatre-Bras to Namur. Napoleon, having examined his disposition on the morning of the 16th, and it being necessary to rest his troops, ordered an attack in the afternoon. Ney again received orders to press forward on Quatre-Bras, to drive out the English before they could be concentrated, and to make a diversion in the Prussian rear, leaving his first corps under general Erlon, 30,000 strong (nearly half of his whole force), as a reserve at Frasnes, which might support him or Napoleon, as necessity should require. Some French writers have accused Ney of dilatoriness, while others have defended him from this charge. (See Gourgaud's *Campaign of* 1815, with the counter statements of Gamot and Marchand.) It is certain that he did not fully develope his forces before four o'clock in the afternoon, when he made his attack on Quatre-Bras, after the prince of Orange, with the Netherlandish troops, the duke of Brunswick, with his corps, and the Hanoverian and British divisions, under Alten and Picton, had already arrived and taken position. Although the junction between Blücher and Wellington was not accomplished on that day, yet Ney's attack was repulsed, notwithstanding his superiority, in the beginning of the action, in cavalry and artillery, of which his opponents were almost completely destitute, and in spite of the uncommon valor displayed by his troops. Wellington, on the Nivelles road, with his right wing resting on Quatre-Bras and the wood defended by the duke of Saxe-Weimar, and his left on the village of Piermont, held Ney in check so successfully, that, in the evening, new British reinforcements continuing to arrive, the former was forced to send for his reserve at Frasnes, and, finally, to make a retrograde movement, and leave the field to the English. The loss on both sides was nearly equal, amounting to about 10,000 men, among whom was the duke of Brunswick. Napoleon began his attack on the Prussians at three o'clock in the afternoon, in two columns. The third French division, under Vandamme, advanced against the Prussian right wing at St. Amand; the fourth, under Gerard, pressed forward towards Ligny; Grouchy, with the cavalry, occupied the attention of the Prussian left wing, under Thielemann, near Sombref. Vandamme's attack was, at first, not without effect, but, towards five o'clock, was repelled so effectually that Napoleon desisted, and, as Ney's diversion in the Prussian rear was not effected, directed his attention upon Ligny. The Prussians had, from the beginning, considered the possession of this village as of the greatest importance. Here the battle raged with the greatest fury, and the ground was covered with the dead and wounded. Gerard had sacrificed nearly his whole division for the possession of one half of the village, separated by the rivulet of the same name from the other half. He was unable to penetrate farther; nor could the Prussians, on the other hand, dislodge him by the most vigorous attacks. If the fourth division, under Bülow, had arrived at this moment, it would have decided the fate of the day; but a variety of obstacles retarded it. The evident relaxation in Napoleon's attack on the right wing gave the Prussians an opportunity of obtaining an apparent advantage in that quarter. All the disposable reserves were directed towards that point, when Napoleon unexpectedly threw himself upon Ligny. He now accomplished his purpose by means of his guards, who passed the Ligny on the right and left of the village, and threatened to cut off the exhausted Prussians, which would have been the more easily effected, as all the reserves and artillery had been withdrawn. Blücher attempted in vain to repel the French cuirassiers, with about 1000 light cavalry. He was in such danger, on this occasion, that he was only saved by the darkness, almost by a miracle. (See *Blücher*.) Nothing remained but to abandon Ligny, and retire with his first and second divisions, in large bodies, upon Wavre, whither, towards midnight, the third division, which had been less actively engaged during the day, followed. Napoleon overrated the loss of the Prussians, and allowed them to retire unmolested, probably because his troops were too much fatigued, and required rest to be in a state to be led against Wellington. Grouchy, Vandamme, and generals Excelmans and Pajol, received orders, on the 17th, to follow the Prussians, with 35,000 men; but they had lost sight of them in the beginning of the pursuit—a circumstance which, with Grouchy's affair at Wavre (q. v.), had a great influence upon the events at Waterloo. In the battle of

Ligny, the Prussians were superior in number. They lost about 20,000 men and fifteen cannons, partly in consequence of their confined position. Napoleon had brought only about 60,000 men into battle, his sixth division not having reached Fleurus till dark; and the first marched back and forward to and from Frasnes, without taking part in the action; whether in consequence of its original orders, or from misunderstanding, or from the wish of its commander to participate in the battle of St. Amand, has not been clearly explained. The loss of this corps was of the most fatal consequence to Ney. The French accounts gave their loss at Ligny at from 6 to 7000. After Wellington had learned the issue of the battle at Ligny, he retired from Quatre-Bras in the forenoon of the 17th, and was followed by Napoleon. (See *Waterloo.*)

Quatremère-de-Quincy, Antoine Chrysostome, a distinguished French *savant*, member of the Paris academy of inscriptions, was distinguished for his literary taste and talents before the commencement of the revolution. He embraced the cause of moderate reform, and, in 1791, was chosen deputy for Paris, to the legislative assembly, where he was the advocate of the constitutional monarchy. His firmness and moderation could not fail to displease the violent; and he was among the deputies who, on the 8th of August, were insulted on coming out of the assembly. After the dissolution of the legislative assembly, Quatremère was thirteen months in prison, and, after the proscriptions of 1793, his horror of the terrorists was such that he became one of the leaders of the insurrection of the 13th of Vendémiaire (5th of October, 1795). The party of the Jacobins having triumphed, he was condemned to death for contumacy, in not appearing to a charge of having excited a revolt against the convention. He escaped; and a jury having, in July, 1796, declared, that no revolt had existed on that occasion, he came forward, took his trial, and pronounced a discourse on his acquittal, which was distinguished for its boldness and strength. The department of the Seine named him, in 1797, deputy to the council of five hundred; but his opposition to the revolutionists of that day involved him in the sentence of banishment of the 18th of Fructidor (5th of September, 1797). He again escaped, and was recalled in December, 1799, by the consuls. In 1800, having been named member of the general council of the department of the Seine, he was appointed secretary to that body, and was afterwards called to the national institute, in the class of history and ancient literature. In 1814, he was made officer of the legion of honor, censor royal, and intendant of arts and public monuments. In 1815, he was named member of the council of public instruction. He was appointed editor of the *Journal des Savants*, for the department of the fine arts, in 1816, and knight of St. Michael, in 1817. He has pronounced funeral discourses on many of his departed fellow academicians, which have been distinguished for their rich and powerful eloquence. Among his works are, *Le Jupiter Olympien* (1814), on ancient sculpture in ivory and gold; *Essais sur l'Imitation dans les Beaux-Arts* (1823); *La Vie et les Ouvrages de Raphael* (1824).

Quatuordecimians. (See *Sects.*)

Quebec, city; the capital of Lower Canada, on a promontory on the north-west side of the river St. Lawrence, 180 miles below Montreal, nearly 400 from the sea, 700 west by north from Halifax, and 740 from Washington; lat. 46° 47′ N.; lon. 70° 56′ W. The population of the city and suburbs is stated by Bouchette (British Dominions in N. America, London, 1831, 2 vols. 4to.) at about 30,000. By far the greater part of the inhabitants are Roman Catholics, and the French language is most in use. The promontory on which Quebec is built, is formed by the St. Lawrence and St. Charles, and is the termination of a ridge of land, generally from one to two miles wide, which runs from east to west. On the north it has the bold promontory of cape Diamond, rising almost perpendicularly 345 feet above the water; and across it at the north-east, or lower end, the city is built. The fortifications extending across the peninsula, shut in the ground on which the city stands, the circuit of which is about two and a half miles. It is divided into two parts, upper and lower. Upper Quebec is situated on the side of cape Diamond, which slopes to the north, towards the river St. Charles. It is separated from the lower town by a line of steep rocks, which run from the cape towards the west. The lower town is situated immediately under cape Diamond, on ground considerably raised, to prevent its being overflowed, as formerly, at flood tide. The streets run from the upper side of cape Diamond down to the St. Charles, a distance of about half a mile. They are of considerable breadth, and the houses are large and commodious. The houses next the river have very extensive warehouses attached to them, and vessels come close to the wharves to discharge their cargoes. The communication from the lower to the upper town is by a winding street, at the top of which is a fortified gate. "Quebec," says professor Silliman, "for an American city, is certainly a very peculiar town: a military town—most compactly and permanently built—stone its sole material—environed, as to its most important parts, by walls and gates—and defended by numerous heavy cannon—garrisoned by troops, having the arms, the costume, the music, the discipline of Europe—foreign in language, features, and origin, from most of those whom they are sent to defend—founded upon a rock, and in its higher parts overlooking a great extent of country—between three and four hundred miles from the ocean—in the midst of a great continent, and yet displaying fleets of foreign merchantmen, in its fine capacious bay, and showing all the bustle of a crowded seaport—its streets narrow, populous, and winding up and down almost mountainous declivities—situated in the latitude of the finest parts of Europe—exhibiting in its environs the beauty of a European capital, and yet, in winter, smarting with the cold of Siberia—governed by people of different language and habits from the mass of the population—opposed in religion, and yet leaving that population without taxes, and in the full enjoyment of every privilege, civil and religious. Such are some of the important features which strike a stranger in the city of Quebec." The upper town is the seat of government, and the principal residence of the military. Great improvements have recently been made in the style of buildings, and many of the private dwellings, and several of the public buildings are spacious and elegant. There is a French seminary or college, containing usually more than 200 pupils; but much less attention is paid to education than in the principal cities of the U. States. Quebec is better fortified than any other town in America. Its strength has been greatly increased within a few years. It is so well defended at all points, as to render it abundantly adequate to repel any force that could approach it. The basin or harbor of Quebec is very beautiful, safe, and spacious; it is sufficient to contain 100 sail of the line. The depth of water is twenty-eight fathoms; the spring tides rise twenty-three or twenty-four feet, and the neap tides seventeen or eighteen. The river St. Lawrence is twelve miles wide above the city, but is here contracted to one mile in breadth. The exports consist principally of timber, grain, flour, furs, and pot and pearlashes. The trade is very extensive, and is principally confined to British vessels. Amount of imports in 1829, £824,392. Quebec was settled by the French in 1608, taken by the English in 1759, and ceded to them in 1763. In 1775, an unsuccessful attack was made upon it by the Americans under general Montgomery, (q. v.) who fell, together with about 700 men.

Quedlinburg, a town in the Prussian government of Magdeburg, province of Saxony, is situated at the foot of the Hartz mountains, and contains 12,000 inhabitants. It is a place of considerable industry; its distilleries are important, and many swine are fatted for sale. Among its public establishments is an institute for juvenile offenders. Quedlinburg is the native place of Klopstock. The town owes its origin to the foundation of a religious house for ladies there, between 932 and 936, by king Henry I. The abbess, from 1539, a Lutheran, was a member of the estates of the empire.

Queen (Anglo-Saxon, *cwen*, the wife); the wife of a king. In England, the queen is either *queen-consort*, or merely wife of the reigning king, who is in general (unless where expressly exempted by law) upon the same footing with other subjects, being to all intents the king's subject, and not his equal; or *queen-regent*, regnant, or sovereign, who holds the crown in her own right, and has the same powers, prerogatives, and duties, as if she had been a king (see *Great Britain*, division *English Constitution*), and whose husband is a subject, and may be guilty of high treason against her; or *queen-dowager*, widow of the king, who enjoys most of the privileges which belonged to her as queen-consort. It is treason to compass or imagine the death of the queen-consort, and to violate or defile her person not only renders the person committing the act guilty of treason, but also the queen herself, if consenting. If the queen be accused of treason, she is (whether consort or dowager) tried by the house of peers. Queen Caroline (q. v.) was proceeded against by a bill of pains and penalties. (See *Laws of Exception*.) By act of parliament, August 2, 1831, the usual provision of £100,000 per annum, with the use of Marlborough house, was made for queen Adelaide, in case she should survive the king. In Prussia, Sweden and France, the succession being confined to the male line, there can be no queen regnant. (See *Salic Law*.) In Spain (by royal decree of March 29, 1830), Portugal, &c., females are not excluded from the succession to the throne.

Queen's College. (See *New Brunswick*, in New Jersey.)

Quercitron, in dyeing; the internal bark of the *quercus nigra;* it yields its color, which is yellow, by infusion in water, and by the common mordants gives a permanent dye.

Queretaro; one of the states of the Mexican confederacy, formed in 1824, of the old intendancy of the same name, which had been separated from that of Mexico in 1816. It is bounded by the states of S. Luis, Potosi, and Vera Cruz, on the north, by that of Puebla on the east, by Mexico on the south, and by Mechoacan and Guanaxuato on the west; square miles, 15,000; population, about 60,000. It lies entirely on the central plateau of Mexico, which is about 6000 feet above the sea. The climate is temperate, and the productions are maize, wheat, European fruits, &c. (See *Mexico.*) Queretaro is one of the most manufacturing states of the union. Its capital, of the same name, with a population of 35,000, lies in a pleasant valley, 6500 feet above the level of the sea; lat. 20° 36′ N.; lon. 100° 10′ W.; 112 miles north-west of the city of Mexico. It is one of the handsomest cities in Mexico, containing a magnificent cathedral, several convents, hospitals, &c.: the streets are well laid out, and there are several fine squares. The city is the seat of considerable manufacturing industry.

Quesnay, Francis, a French physician of some eminence, but chiefly noted as a writer on political economy, was born in 1694, and died at Paris in 1774. His father was a farmer, and he acquired the rudiments of his profession under a country surgeon; after which, going to the metropolis, he became secretary to a society established for the improvement of surgery. At length he took the degree of M. D., and obtained the situation of physician to Madame de Pompadour, the mistress of Louis XV, and through her interest became physician to the king. Amid the intrigues of a licentious court, he observed a simplicity of manners and apparent disinterestedness which formed a strong contrast with the characters of those around him. Towards the latter part of his life, he became the founder of the political sect of the economists. (See *Physiocratic System*, *Political Economy*, and Laharpe's *Cours de Littérature*, 14th vol.) He was the author of various surgical and medical works, several articles in the *Encyclopédie*, and tracts on politics, including a treatise on Physiocrasy, or the Government most advantageous to the Human Race (1768, 8vo.).

Questors; ordinary magistrates (see *Magistrates*) among the Romans, who managed the public treasury (*ærarium*), kept in the temple of Saturn, and superintended the receipts and expenditures of the public money. They were at first appointed by the kings, afterwards by the consuls, and after 307, A. U., by the people in the *comitia tributa*. At first there were two questors, in 333, A. U.; two others were added to assist the consuls in war. The two first remained in the city. After the Romans had conquered all Italy, four more were added: under Sylla there were twenty; under Cæsar, forty. After this period their number was arbitrary, but in Rome itself the number was always two, who were called, by way of distinction, *quæstores urbani*. The others were called *quæstores provinciales*, or *militares*. The questorship was the lowest office of honor, and opened the way to the senate; but it was sometimes filled by consular men.

Quevedo-Villegas, don Francisco de, a Spanish poet, was born at Madrid in 1580, and studied at Alcala de Henares. Besides the ancient languages, his course of studies comprised theology, medicine and philosophy, as he was unwilling to devote himself to any professional pursuit. He combined extensive learning with much wit and great originality. In consequence of a duel, in which his adversary fell, he fled to Italy, where his services gained him the confidence and friendship of the duke of Ossuna. (q. v.) After having visited Germany and France, Quevedo returned to Spain; and on account of his connexions with the duke, then in disgrace, he was arrested and confined to his estate, La Torre de Juan, for three years. To restore his health, impaired by his confinement, he travelled through Spain, and afterwards lived in retirement on his estate, where he probably wrote his poems published under the title of the Bachelor of La Torre. Philip IV conferred on him the place of secretary, and, in 1634, Quevedo married the sister of the archbishop of Abarazin. But at the age of sixty-eight years, he was imprisoned for a libel on the duke of Olivarez, which was imputed to him without any proofs. He was released after two years' confinement, but his health had suffered much from his imprisonment. Being banished from court, he retired to his estate, which had been repeatedly plundered while he was in prison, and died at Villa Nueva de los Infantes, in 1645. His works are various in their character. His humorous productions are distinguished for playfulness, wit and invention. His prose works are mostly effusions of humor and satire. His Visions (*Sueños*) have been translated into most European languages (English, by L'Estrange); his *Vida del Gran Tacaño* is a comic romance of the sort called by the Spaniards *picaresco*. He also translated the *Enchiridion* of Epictetus into Spanish. His works were published at Brussels, in three volumes quarto, in 1660 and in 1670, and have since been repeatedly reprinted.

Qui vive (who lives?); the challenge of the French sentries to those who approach their posts; equivalent to the English "Who goes there?" To be on the *qui vive* is to be on the alert, like a sentinel.

Quiberon; a peninsula on the western coast of France, in the department of the Morbihan, containing the town of Quiberon (2000 inhabitants) and several hamlets. June 27, 1795, a body of 1200 to 1500 *émigrés*, under the command of the count d'Hervilly, landed on this coast, and took possession of the peninsula. Their numbers were increased by several thousand royalists; but they were soon compelled, by the advance of the republican forces under Hoche (q. v.), to shut themselves up in the peninsula, under the protection of fort Penthièvre, situated on its isthmus, and of the English squadron, by which they had been brought over. Six thousand Chouans (q. v.), with their wives and children, followed them thither. Hoche now besieged the peninsula. July 16, D'Hervilly attempted a sortie, in which he fell. On the 17th, a reinforcement of *émigrés* landed, under the command of Sombreuil. On the 21st, the fort was taken by the republicans, who penetrated into the peninsula; and on the 23d, Sombreuil surrendered, with 4000 men, after a brave resistance. The young Sombreuil (28 years old), whose father and brother perished under the guillotine during the revolution, and about 200 of the royalists, were shot. In 1829, a chapel was erected here, containing a marble monument to the memory of the *émigrés* who fell on this occasion. (See *Vendée*.)

Quick, or Quickset Hedge, among gardeners, denotes all live hedges, of whatsoever sorts of plants they are composed, to distinguish them from dead hedges, but in a stricter sense of the word, is restrained to those planted with hawthorn.

Quicklime. (See *Lime*, vol. vii, page 554.)

Quickset Hedge. (See *Quick Hedge*.)

Quicksilver. (See *Mercury*.)

Quietism. The ceremonial and hierarchical spirit of some monastic orders, especially of the Jesuits and Dominicans, had, in the seventeenth century, almost converted religion, among the Catholics, into a mere mechanical service. The repetition of forms of prayer from the breviary, and on the rosary, fasting, confession, frequent pilgrimages, invocations of the mother of God and of saints, almsgiving, the purchase of indulgences, and, in a word, the minute observation of external forms, came to be viewed as real piety. Pious minds, disposed to a more earnest devotion, turned with ardor to mysticism, which afforded refuge and spiritual aliment to the more feeling soul, when all religion seemed to have become petrified in the forms of ritual observances. The Spiritual Guide (*Guida Spirituale*), a work published at Rome in 1675, by Michael Molinos, a Spanish priest, answered this want. With an enthusiasm which soon gained favor to his pious fancies, Molinos spoke of the tranquillity of a soul absorbed in the Deity, which, dead to all other thoughts and feelings, and disturbed by no outward events, had perception of nothing but the presence of God. In obedience to his instructions, the devout now sought solely this tranquillity of soul (*quies*, Latin, *rest*, whence *Quietism* and *Quietists*; in Greek, *Hesychastes*); and no opposition would have been made to them, but for the danger that the devotional exercises enjoined by the church and the monastic orders would appear superfluous. Molinos was obliged to abjure his errors, and terminated his life in daily acts of penance in a Dominican convent in Rome. (He died in 1696.) But this violence by no means prevented the diffusion of Quietism. The Spiritual Guide was eagerly studied, and produced a number of similar works in Germany and France, where the way had already been prepared for its reception, by the works of Bourignon (q. v.), Poirets, and the Pietists. As early as the fourteenth century, there was a body of monks called *Hesychastes* (also *Umbilianimi*), who spent their whole time in prayer and meditation. (See *Hesychastes*.) The most celebrated promoter of Quietism in France, was a beautiful and rich widow, a favorite at the court of Louis XIV, Joanna Maria Bouvier de la Mothe Guyon, who, under the name of Madame Guyon, is celebrated as an amiable enthusiast, of more imagination than judgment. Her example, her prayers, her works, replete with unction, and the exertions of her confessor Lacombe, gained her adherents enough to excite the attention of the clergy. There were, indeed, strong reasons for believing a young woman crazy, who imagined herself the pregnant woman of the Apocalypse (xii, 2), and who, in her own account of her life, says that she was often filled with such an overflowing of grace, that she was literally on the point of bursting, and that it became necessary to loosen her clothes; upon which this fulness of grace was poured out upon those who did her this service. Lacombe was thrown into prison at Paris, and died in confinement, in 1702; but Mad. Guyon herself, after a short imprisonment, was restored to liberty, and had the honor of being allowed to take part in the prayers of Mad. de Maintenon at St. Cyr. The controversy therefore seemed at an end, when Fenelon (q. v.) thought he discovered in Mad. Guyon a kindred spirit, and became the advocate of her and her writings, in his *Explication des Maximes des Saints sur la Vie intérieure* (1697). The accession of so distinguished a man, whose works of devotion had been received in France with enthusiasm, gave new weight to Quietism, and an opportunity to Bossuet, the champion of the French theologians, to inflict disgrace on his envied rival. Bossuet obtained, in 1699, a papal brief, which condemned twenty-three positions from Fenelon's book as erroneous; but the humility with which he submitted, and which was admired even in Rome itself, deprived his enemies of the fruits of their victory; and it was the change in the spirit of the times, and not violence,—though Mad. Guyon (who died 1717) underwent another short imprisonment,—that gradually buried Quietism in oblivion. It had never formed a sect; but for some years it continued to be the subject of works of devotion, and the peculiar opinion of a party among the pious. From Fenelon's book, in which Quietism is most clearly described, we learn that it was a harmless enthusiasm, adapted only to persons of a fanciful and exaggerated turn of thinking. Truth and falsehood are strangely blended in it; it requires pure love, which, without fear or hope, indifferent to heaven or hell, is directed with entire self-denial to God, merely because he wills it. The flesh must be mortified, every worldly feeling banished, all confidence in our own merits by good works abandoned, and the soul be transferred to a passive state, in which its own activity ceases, and God alone works in it. This state, which unites the soul essentially with God, is tranquillity, or incessant internal prayer (the permanent direction towards God), in which nothing is desired, nothing asked from God, but, entirely resigned to him, the soul is contented with the pure contemplation of his being. Rarely as these precepts of Quietism can be put in practice, because they comport neither with the wants of human nature nor the demands of our social condition, they have, nevertheless, frequently reappeared in the mysticism of later sects. The term has also been applied to the religious notions of the Indian bramins, whose object is to attain a state of holiness, by the destruction of all corporeal and intellectual activity, and thus to become incorporated with Brama. (See Mad. Guyon's Life, by herself.)

Quills, for writing. (See *Pens*, *Writing*.)

Quilting; a method of sewing two pieces of silk, linen, or stuff, on each other, with wool or cotton between them, by working them all over in the form of chequer or diamond work, or in flowers. The same name is also given to the stuff so worked.

Quin, James, an eminent English actor, born in London, in 1693, was the son of an Irish barrister, and was educated in Dublin. His father had married a supposed widow, whose husband, after a long absence, returned and claimed her; on which account Quin, who was the offspring of the connexion, was deemed illegitimate, and, upon his father's death, in 1710, was left without a fortune. This interruption of his prospects prevented him from being adequately educated for a profession, and he had recourse to the Dublin stage, in 1715, and in a year after secured an engagement at Drury-lane theatre. In 1717, he quitted Drury-lane for the theatre in Lincoln's-inn-fields, where he remained seventeen years, and gradually acquired celebrity in characters of grave, dignified and sententious tragedy, as in Cato, Zanga and Coriolanus, and in those of strong sarcastic comic humor, as Falstaff, Volpone, and sir John Brute. In 1732, he removed with the same company to Covent-garden; but, in 1735, was induced to join that of Fleetwood at Drury-lane, on such terms as no actor had previously received; and he retained the preëminence until the appearance of

Garrick in 1741. In 1747, he was engaged at Covent-garden with Garrick; but the new actor obtained so great a share of attention as to have gradually induced Quin to retire. His last performance was Falstaff (1753), in which character he is supposed never to have been exceeded. He survived his retreat several years, which he spent chiefly at Bath, where his fund of anecdote, and pointed sense, made him much sought after. Quin, who was convivial, and too fond of the bottle, was often coarse and quarrelsome on these occasions, which led to two or three hostile encounters, one of which proved fatal to his antagonist. He was otherwise manly, sensible and generous; and his deliverance of Thomson, although then unknown to him, from an arrest, by a present of £100, is much to his honor. He died at Bath in 1766, aged seventy-three. Garrick, once his rival, and afterwards his friend, wrote the epitaph for his monument in Bath cathedral.

Quina, or Quinina; a vegetable alkali extracted from pale cinchona. It exists in transparent plates, which are insoluble in water, and of a bitter taste. It unites with the acids, forming crystallized salts. The sulphate is of a dull white color, silky and flexible. Like quina, it is soluble in alcohol, and burns away without leaving any residuum. A grain of pure sulphate of quina will render nearly a pound and a half of water sensibly bitter. When one grain is dissolved in about 300 grains of boiling distilled water, pure sulphate of quina will, on cooling, be deposited, in feathery crystals, in twenty-four hours, if there be no adulteration. The alkalies and their carbonates cause a precipitation in water, containing a thousandth part of sulphate of quina; and a solution of tannin does so in a solution ten times more dilute. The sulphate is composed of quina 100, and sulphuric acid 10.9. The acetate of quina is remarkable for the manner in which it crystallizes. Its crystals are flat needles, of a pearly appearance, which are grouped in star-like bundles. The sulphate of quina, in doses of from six to twelve grains, has been found an effectual remedy against intermittent fevers. It is said that the red or yellow bark yields the most febrifuge quina. The following is a good method for determining whether bark is rich in quina:—Digest alcohol on it in coarse powder till it be drained; precipitate the coloring matter by acetate of lead; filter and separate the excess of lead by a few drops of sulphuric acid; then filter and distil; when sulphate of quina will remain mixed with a fatty matter. Ammonia will now separate the quina.

Quinault, Philippe, the most distinguished French opera writer, born in 1635, was the son of a baker, and had no advantages of education. Excepting some instruction in regard to versification, by Tristan L'Hermite, he owed every thing to his own industry and talent. Even before the twentieth year of his age, he brought out some plays, and, for several years, continued to write with success for the stage. His success, however, only rendered him a mark for the satire of Boileau, who attacked him with so much bitterness as to have injured his own fame. Quinault then abandoned tragedy, which he felt not to be his province, and, connecting himself with Lully, labored for the opera. In this lyric department of poetry, he displayed such talents as to be placed above all his competitors, and to be ranked, by the best judges, among the most distinguished men of the age of Louis XIV. There is nothing in the French language more delicate, tender and ingenious than the turn of his songs and love dialogues. Boileau, and the other censurers of Quinault, attributed the success of his pieces solely to the merit of Lully's music; which, however, is now forgotten, while Quinault's verse is always read with pleasure. His *Armide* (1686), and his *Atys*, are masterpieces in their kind. Quinault, who was not without experience in affairs of business, married the widow of a rich merchant, whose estate he had settled, and purchased (1671) the post of auditor in the chamber of accounts. He was soon after received into the French academy, and, in the name of that body, congratulated the king on his return from the campaigns of 1675 and 1677. The flattery which he employed in his prologues obtained him a pension. A melancholy, produced probably by the decline of his health, disturbed the happiness of his last years. He was filled with regret for having devoted his talents to theatrical productions, and determined to apply what remained of his powers to the honor of God and the king. He began a poem upon the extirpation of Protestantism in France, which, however, would only have diminished his reputation. He died in 1688. In society, Quinault was polite, amiable and kind. Besides his theatrical pieces, he was the author of several occasional poems. His works were published in 1739 and in 1778, in five volumes, with a life prefixed.

Quince (*cydonia vulgaris*); a low, tortuous tree, named after the ancient town of Cydon, in Crete, from which place it was said to have been introduced into the other parts of Europe; but it appears to grow wild in Western Asia and some of the neighboring parts of Europe. It is now cultivated throughout Europe, and in many parts of the U. States, for the sake of its fruit, which, though hard and austere when plucked from the tree, becomes excellent when boiled and eaten with sugar, or preserved in sirup, or made into marmalade. Quinces, when mixed with other fruit, in cookery, communicate a very pleasant flavor; and a delicious wine may be made from their juice, mixed with sugar in the proportion of one quart to the pound, and fermented. The leaves of the quince tree are simple, alternate and entire; the flowers are large, white, sometimes with a blush of rose, and are solitary at the extremity of the young branches; the divisions of the calyx are denticulated; and the fruit is somewhat pear-shaped, yellowish and cottony, internally containing five cartilaginous cells, in each of which the seeds are arranged in two series to the number of eight and upwards, and covered with a mucilaginous substance. This character of the numerous seeds is the principal circumstance in its structure, which distinguishes the quince from the apple and pear. The quince succeeds best in a light soil: if it be too rich, the fruit becomes insipid, and if too dry, it remains small and coriaceous. The *Cydonia Japonica* is a beautiful low bush, remarkable for the brilliancy of its flowers, which vary from the richest scarlet to the most delicate blush color. It is very hardy, and is one of the most ornamental shrubs that can be placed in a garden. It is a native of Japan.

Quinctilianus. (See *Quintilianus.*)

Quincunx, in Roman antiquity, denotes any thing that consists of five twelfth parts of another, but particularly of the *as*, or pound. (See *As.*)

Quincy; a post-town of Norfolk county, Massachusetts, eight miles south-east of Boston; population, in 1830, 2192. It is a pleasant town, and contains many handsome country seats; also the residence of the late John Adams, which is now the seat of his son John Quincy Adams. Here also is a rail-road, three miles in length, which was the first constructed in America. It is used to convey granite from the quarries in this town to the tide waters of Neponset river.

Quincy, Josiah, junior, an eminent American patriot, was born in Boston, Feb. 23, 1744. He acquired the rudiments of a classical education at Braintree, and, in 1759, entered Harvard college, where he became conspicuous for industry, zeal and talent. In 1763, he graduated, and, three years afterwards, he received the degree of master of arts. Immediately after, he entered the office of Oxenbridge Thatcher, a distinguished lawyer of Boston, who was subsequently associated with James Otis against the famous writs of assistance. He had not been long admitted to the bar before he obtained an extensive practice, and high professional rank. He made himself equally conspicuous by the ardor with which he wrote and spoke against the encroachments of the mother country. In October, 1769, he married the eldest daughter of William Phillips, esquire. In the following year, he was called upon to perform a duty which it required all his strength of mind to discharge. On the 5th March of that year, occurred what is called the "Boston massacre," a party of British soldiers, under the command of captain Preston, having fired upon and killed a number of persons in a mob, by whom they had been attacked with stones and other missiles. Captain Preston and the accused soldiers selected John Adams and Mr. Quincy for their defenders, notwithstanding the intense hostility which those gentlemen had always evinced towards the proceedings of England. It was a trying moment for both of those patriots. The soldiery had acted in self-defence, and were entitled to the best means of obtaining justice; but the public feeling was so bitter against them, that the advocates they had chosen saw inevitable odium in undertaking their cause. They, nevertheless, did what duty demanded; and the soldiers were acquitted, with the exception of two, who received a slight punishment. For a time, the well-earned popularity of their defenders remained under a cloud, but only to shine afterwards with greater brightness. Until 1772, Mr. Quincy continued actively engaged in his profession, at the same time constantly disseminating his patriotic sentiments by writing; but, in that year, his naturally delicate constitution became so much exhausted by unremitted occupation, that he was obliged to abandon all business. His complaints assumed a pulmonary character; and, in

February, 1773, it was decided that his only hope of life depended upon an immediate change to a more southern climate. Accordingly, on the 8th of that month, he embarked for Charleston, South Carolina. He returned to Boston by land in the ensuing May, so much improved in health as to be able to resume his professional and political labors. In May, 1774, he published his chief political work, entitled Observations on the Act of Parliament, commonly called "the Boston Port Bill," with Thoughts on Civil Society and Standing Armies, which is affixed to the interesting Memoir of him written (1825) by his son, Josiah Quincy, the present president of Harvard college. Soon after this work was advertised as being in the press, he received a communication signed "Your well-wisher," in which he was warned of the imminent danger the writer considered him in, "of the loss of life and confiscation of his estate," and at the same time was conjured to abandon his "treasonable and rebellious" course, and devote his "rare talents" to reconciling the people with the English government, instead of "keeping up their frenzy." To this he published a reply in the Massachusetts Gazette, in which is this passage: "The danger and the wrongs of my country are to me equally apparent. In all my public exertions, I feel a sense of right and duty, that not only satisfies my conscience, but inspires my zeal. While I have this sentiment, I shall persevere, till my understanding is convinced of its error—a conviction that will not be wrought by the arm of power, or the hand of an assassin." In September, 1774, Mr. Quincy sailed for England, at the urgent solicitation of his political friends, who supposed that he might be of great service to his country in London. Nov. 8, he landed at Falmouth, and proceeded thence to the metropolis. In London, he became intimately acquainted with the principal whigs, and was unremitting in his labors to promote his country's interests in every way that was in his power. He maintained a constant correspondence with many of the patriotic leaders in America, which, together with his interesting journal, is contained in the volume of his son, to which we have referred. After remaining in London until March, 1775, he embarked for America, because his intimate friends in that city thought that his return there would be of great advantage to the cause for which he was toiling, though his health had been for some time in such a state, that his physician had strongly advised his remaining in England, and trying the Bristol air and water; and he himself was convinced that his recovery depended upon following the advice. He never reached his native shores. He grew worse and worse during the voyage, and, on the 20th of April, when in sight of land, breathed his last, at the early age of thirty-one years, a martyr to his love of country.

Quincy, Quatremère de. (See *Quatremère.*)

Quindecagon, in geometry, a plane figure with fifteen sides and fifteen angles, which, if the sides are all equal, is termed a *regular* quindecagon, and *irregular* when otherwise.

Quinine. (See *Quina*, and *Bark, Peruvian.*)

Quinipiack; the Indian name of New Haven. (See *New Haven.*)

Quinquagesima; name of the Sunday before Lent, because fifty days before Easter; also called *Esto mihi.*

Quinquets; the French term for Argand lamps. (See the latter part of the article *Lamp.*)

Quinsy; an inflammation of the throat; a species of angina, which renders respiration difficult, or intercepts it; also an inflammation of the fauces.

Quintane; a Roman military sport or exercise by men on horseback, formerly practised in England to try the agility of the country youth. It was tilting at a mark, made in the shape of a man to the navel, having a shield in his left hand, and a wooden sword in his right; the whole was made to turn round, so that if it was struck with the lance in any other part but full in the breast, it turned with the force of the stroke, and hit the horseman with the sword which it held in its right hand.

Quintessence (from *quinta essentia*, the fifth essence, by which the Pythagoreans meant the æther), in chemistry; the concentrated extract of the virtues of a substance; hence, in general, the purest, best, or highest state of a quality.

Quintetto, or Quintett (*Italian*); a vocal or instrumental composition in five parts, in which each part is *obbligato*, and performed by a single voice or instrument.

Quintilianus, or Quinctilianus, Marcus Fabius, flourished in the first century of the Christian era, and, at an early age, left Calaguris (now Calahorra), in Spain, the place of his birth, for Rome, where he first distinguished himself as an advocate, and afterwards as a rhetorician.

Some of the most eminent Romans were his pupils, and the emperor Domitian bestowed on him the consular dignity. During the reign of that emperor, Quintilian wrote his excellent work, *De Institutione Oratoria*, which contains a system of rhetoric; it exhibits him as a practised master, a man of taste and talents, and a worthy imitator of Cicero. The tenth book, which contains his opinions of Greek and Roman writers, is particularly interesting, and important for the history of literature, and is characterized no less by acuteness than cogency of reasoning. There are also a considerable number of rhetorical speeches (*declamationes*) attributed to him, but they are not considered genuine. A treatise, *De Oratoribus sive de Causis corruptæ Eloquentiæ*, is often published with his works, but is also ascribed to Tacitus and to other writers. The best editions of Quintilian are Burmann's (Leyden, 1720, 2 vols., 4to.), Capperonier's (Paris, 1725, fol.), Gesner (Göttingen, 1738, 2 vols., 4to.), Spalding's (Leipsic, 1798—1816, 4 vols.), and Lünemann's (Hanover, 1826, 2 vols.).

Quintuple Alliance. (See *Quadruple Alliance*.)

Quintus Calaber, or **Smyrnæus**; a Greek poet, the time and place of whose birth are uncertain. His surnames are derived from the discovery of his poem in Calabria, and his mention of Smyrna as the place of his residence. He probably flourished in the fourth century A. D. His poem, Παραλειπομενα ʽΟμηρου (Supplement to Homer), is a continuation of the Iliad, in which Homer is indeed imitated, but by no means equalled in grace and simplicity. The latest critical edition of this work, by Tychsen, with remarks by Heyne (Strasburg, 1807), was published at the expense of the Bipont society.

Quipos; a contrivance which supplied the place of writing among the Peruvians, at the time of the conquest of Peru by Pizarro, in the sixteenth century. It consisted of several threads of different colors attached to a cord, and tied in knots. Each color had its peculiar signification; and, in case the sense could not be conveyed by the colors, the knots were used. By this means, calculations were carried on, enumerations of the population, historical documents and laws preserved, leagues and treaties indicated, &c. In each town there were officers whose duty it was to take care of the *quipos*. The defects of this species of writing were supplied by oral tradition and short poems. A somewhat similar contrivance was in use in Guiana. (See *Writing*.)

Quirinus, among the Romans; a surname of Mars, and, at a later period, of Romulus. (q. v.) It was derived from the Sabine word *quiris* or *curis*, which is said to have signified a spear, and figuratively a soldier; thence also the name *Quirites*, assumed by the Romans after the union of the Sabines, and applied to Roman citizens in harangues addressed to them. The terms *Quirinalia* (a festival in honor of Romulus), and *Quirinalis* (one of the seven hills of Rome), are of the same origin.

Quiroga, Antonio, leader of the Spanish troops, who, in January, 1820, declared themselves in favor of the constitution of the cortes of 1812, was born in Galicia, in 1784, of a very respectable family. After having served in the navy, he entered the army in 1808, and distinguished himself under Morillo, in the war of Spanish independence. (See *Morillo*.) In 1814, he was made lieutenant-colonel, and, a few years after, colonel, in the forces designed for America. Perceiving the discontent of the troops, Quiroga, in 1819, placed himself at the head of the conspiracy, got up under the influence of the general count del Abisbal; the latter, however, having divulged the fact of the conspiracy, Quiroga, and several other officers, were thrown into prison, from which they were released by the insurrection of the troops under Riego, in January, 1820. (See *Riego*.) Quiroga, as chief officer, conducted the struggle for the constitution of 1812, which was accepted by Ferdinand on March 7th. Quiroga was now promoted to a major-generalcy, and chosen, by the province of Galicia, member of the extraordinary cortes of 1820. In this body he was distinguished no less for his moderation and prudence than for his zeal, opposing with equal firmness and eloquence the encroachments of power and of popular licentiousness. In 1821, he was appointed commander-in-chief of the second military province (Galicia), and the cortes voted him an estate as a mark of the national gratitude; but he declined to accept it, as he considered the burdens of the nation already too great. In March, 1822, a duel took place between him and the deputy, Morena-Guerra, in consequence of the latter having insulted him in several letters. It was arranged that only one pistol should be loaded, and that lots should be drawn for it. Chance put it into the hands of Quiroga, and he immediately fired it into the air. In the campaign of 1823, he commanded the fourth division under Morillo; and when the latter entered into a kind of convention of neutrality with the enemy, Quiroga separated from him, and attempted to defend Corunna against the French; but his means were insufficient, and, after further ineffectual attempts in defence of the constitution, he retired to England. In 1830, he was one of the patriots who endeavored to organize a new insurrection in Spain, by an invasion from the Pyrenees; but the attempt was without success. (See *Mina*, and *Spain*.)

Quit-Claim, in law, signifies a release of any action that one person has against another. It signifies also a quitting a claim or title to lands, &c.

Quit-Rent, in law; a small rent that is payable by the tenants of most manors, whereby the tenant goes quit and free from all other services. Anciently this payment was called white-rent, because it was paid in silver coin, and to distinguish it from rent-corn.

Quito; formerly an *audiencia* of New Grenada, more recently an integrant part of the republic of Colombia, bordering on Peru and the Pacific ocean. (See *Colombia*, *Sucre*, and *Venezuela*.) It is divided into the three departments of the Equator, Asuai, and Guayaquil, and contains a population of about 520,000, principally Indians and mestizoes. An elevated part of the chain of the Andes traverses this country, and is divided into two ridges separated by a lofty plain, about twenty miles in breadth, on which most of the population is concentrated. The western ridge is from 100 to 200 miles from the ocean, and contains the summits of Pichincha, Chimborazo, &c. (See *Andes*.) The eastern ridge contains several volcanoes in activity. The low country yields maize and sugar, and the higher regions, corn. The climate, in general, is cold, and earthquakes often produce great ravages.

Quito; a city of Colombia, capital of the department of the equator, 460 miles south-west of Bogotá, and 850 north of Lima, lying at the foot of the volcanic mountain Pichincha, in lat. 13′ S., lon. 78° 45′ W., at an elevation of 6550 feet above the level of the sea. The streets, owing to the nature of the ground, are generally uneven and irregular, and are also narrow and badly paved. The houses are commonly of but one story, on account of the frequency of earthquakes, and built of unburnt bricks and clay. The city contains a cathedral and episcopal palace, seven other churches, numerous convents, several hospitals, and other public buildings. The population is differently estimated at from 40,000 to 70,000. The climate is mild, and almost the same throughout the year; but furious storms and earthquakes too often cause great ravages. Quito was taken by the Spaniards in 1534, and was for a long time attached to Peru, but, in 1718, was annexed to New Grenada.

Quixote, Don. (See *Cervantes*.)

Quodlibet (Latin, *as it pleases*) signifies any thing thrown together without order or connexion. Comic pictures, consisting of various disconnected fragments, poems, and musical pieces of a similar nature, are called *quodlibets*. (See *Potpourris*.) The more usual sense of *quodlibet*, in English, is a quibble.

Quorum, in England and the U. States; a term used in commissions, of which the origin is the Latin expression, *quorum unum A. B. esse volumus* (of whom A. B. shall be one), signifying originally certain individuals, among several persons invested with power, without whom the others could not proceed in the business. Thus, among the justices of the peace, it was customary to name some eminent for knowledge and prudence, to be of the *quorum*; but all justices are now generally of the *quorum*. In legislative and similar assemblies, a *quorum* is such a number of members as is competent to transact business. In the congress of the U. States, it is provided by the constitution (i, 5), that a majority of each house shall constitute a *quorum* to do business.

Quotient; the quantity obtained by the process of division, or, in other words, the quantity which indicates how often the divisor is contained in the dividend; thus 3 is the quotient of 15 divided by 5.

R.

R, the eighteenth letter of the English alphabet, a lingual and a liquid or semivowel, as it can be pronounced before and after most consonants. This letter is pronounced in various languages, and in several instances even in the same language, in different ways. The most natural mode, at least that which is most agreeable to the ear, and most common in the various languages, is by an expiration, whilst the tongue touches the roof of the mouth with a tremulous motion,—the pronunciation of the English *r* at the beginning of a syllable, as *rhetoric*. This sound is still more distinct in the Spanish language, when one *r* ends a syllable, and another begins the next, as *zurra*. This tremulous motion of the tongue makes the pronunciation of *r* more difficult than that of any other letter in the alphabet, so that it is the last which children learn; and if the tongue is too thick, or is too closely joined to the lower part of the mouth, they do not learn it at all. Indeed, the sound of *r* is entirely wanting in some languages, as in that of the Delaware Indians and ancient Massachusetts stock. Among the Cherokees, those members of the tribe who live in the mountains (called *mountaineers*) change *r* into *l*; the others (now civilized) have always *l* instead of *r*. (See *L*.) Another pronunciation of the letter *r* is produced by curving the tongue towards the roof of the mouth, and pressing the upper part against the back part of the roof. This is the common pronunciation of the French *r*; and in this way the letter may be pronounced so much from the throat, as to partake considerably of the nature of a guttural. If the tongue is not pressed quite so much against the roof of the mouth, and the air is expired with less strength, we produce the sound which the English *r* has at the end of certain syllables, as in *perceive*. The English, and more particularly the Irish, are distinguished from the Americans by drawing the tongue far back, and thereby preventing the air from escaping freely, which produces a peculiar rolling sound. You may distinguish an American and Englishman immediately, if they only wish you a "good morning."* The *r* loses its true pronunciation most, in the English language, when it follows *a*, in which case the *ar* is pronounced almost as the Italian *a*, only a little less open, with a slight guttural contraction. From this resemblance, we find, in some parts of the U. States (e. g. Boston), that words ending with the Italian sound of *a*, are pronounced as if they ended in *ar*; thus children will say, "*'par*," instead of "*'pa*," (for *papa*). *Law* is very often pronounced *lor*; and you may hear, among the vulgar, the expression "*sawring* wood." When the writer taught German in England, and dictated a word like *Freude*, the pupils would invariably write *Freuder*. *R* after *e* and *i*, it is known, changes the pronunciation of the latter, in the English language, as in *perquisite*. (See article on the letter *E*.) The first pronunciation of *r* cannot be produced but by an expiration of considerable strength, which is the reason why, in many cases, it is written with a following *h*, or, in some languages which incline much to aspirate sound, is preceded by *h*. Adelung says that *r*, on account of its tremulous motion, is naturally used for expressing every tremulous motion, and, figuratively, every violent and sudden emotion, also quick repetition, intension, &c.; e. g. *tremere*, *ira*, *rash*, *irrer*, and the German frequentative syllable added to verbs (*ern*), which, in many cases, is changed into *eln*. The tremulous motion of this letter, moreover, produces, in speaking quickly, an uncertainty as to its preceding or following the vowel, so that *r* is transposed oftener than any other letter: *to burn*, in English, is *brennen* in German; *Brunn* and *Born* both, in German, signify a *well*; so there are the Latin *cerno* and *crevi*, *germen* and *gramen*, *pro* and *por*; the Greek κρανίον and κάρηνον; and innumerable other cases. As the pronunciation of *r* differs from that of *l* only by the tremulous motion of the tongue, it is natural that either of them should often take the place of the other. (For some remarks respecting both letters, see the letter *L*.) The pronunciation of the letter *s* is also much allied to that of *r*, as the tongue is in the same position, only allowing the air to pass over the point, instead of shaking it. Hence, also, the frequent alternation of these two letters; as, *æs*, *æris*; *arena*, with the ancient Romans *asena*; *hare*, in German *Haase*; *was*, in German *war*; the German *Rohr*, in Ulphilas *Raus*, and in French *roseau*, &c. The R of the Romans was derived from the P (*rho*) of the Greeks. It is the *resh* of the Phœnicians and Samaritans, formed thus, 𐤓 and ᚹ. The various forms of the P of the Greeks and Etruscans may be found in Mionnet's *Descr. de Médailles*, pl. xix and xxi.—As a Roman numeral, it signified 80, according to the verse,

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* The London cockney pronunciation approaches the American in this respect, as in the case of *corn*, which is pronounced, in the city, almost like *cawn*.

Octoginta dabit tibi R, si quis numerabit;

with a dash over it, 80,000. With the Greeks, ρ with the accent over it, signified 100; with the same sign under it, it was 100,000. The Hebrew *resh* (ר) denoted 200, and (ר̈), 200,000. R, on ancient medals, signifies *Ravenna*, *redux*, *regia*, *restitutor*, *Roma*, *Romanus*, &c.; P. R., *populus Romanus*; R. P., *res publica*; R. C., *Roma condita*; R. M. S., *Romanus*; R. C., *rescriptum*, &c. Among the names, R signified *Roscius*, *Rubrius*, *Regulus*, *Rufus*, &c. R, in numismatic works, signifies *rare*; and the different degrees of rarity are indicated by one, two, three, &c. R stands, in modern times, for *rex*; and the English king always adds it to his name, as, *William R.*—*Rx.* is *rix dollar*.

Raab; a city of Hungary (anciently Jaurinum) on a river of the same name, at its confluence with the Danube; 16,118 inhabitants. June 14, 1809, the archduke John and the palatine of Hungary were defeated here by the French, under Eugene Beauharnais. (q. v.)

Rabanus, Maurus Magnentius, a learned German prelate, born in 785, at Mayence, received his first instruction at Fulda, and afterwards became the disciple of Alcuin, at Tours. In 822, he was made abbot of Fulda. In 839, the monks expelled him, alleging that, in consequence of his devoting so much time to his studies, the affairs of the monastery were neglected. They afterwards wished him to resume the government; but he declined, and remained in retirement until 847, when he was made bishop of Mayence. One of his first acts was to summon a council, in which he procured the condemnation of Godeschalc, for maintaining the doctrine of St. Augustine respecting predestination and grace. Rabanus died in 856. He was a man of great learning, which he displayed in several treatises and commentaries, which were published in 1627, at Cologne, in 3 vols., folio.

Rabaut de St. Etienne, John Paul, a French Protestant clergyman and advocate, was born in 1741, at Nismes, for which city he was chosen a deputy to the constituent assembly, in 1789. He had previously obtained some reputation by his writings; and possessing eloquence and address, he appeared with advantage as a public speaker. He distinguished himself, at first, as one of the warmest advocates for innovation; but on being elected a member of the national convention, his ardor in some degree subsided. He had the courage to speak against the right of the convention to sit in judgment on Louis XVI. His sentiments, and his connexions with the Girondists, proved his destruction. He was arrested, June 2, 1793, but made his escape, and was declared an outlaw on the 28th of July. He returned to Paris, and found an asylum in the house of his brother. Being discovered by accident, he was guillotined, Dec. 5, 1793. He published several historical and political works, among which are *Lettres sur l'Histoire primitive de la Grèce* (1787), and *Précis de l'Histoire de la Révolution de France* (1791), new edition, with a life of the author, by Boissy d'Anglas (1822).

Rabbanists, or **Rabbinists**, also **Talmudists**. (See *Jews*, and *Talmud*.)

Rabbeting, in carpentry; the planing or cutting of channels or grooves in boards. In ship-carpentry, it signifies the letting in of the planks of the ship into the keel, which, in the rake and run of a ship, is hollowed away, that the planks may join the closer.

Rabbi (Hebrew for *teacher*, *master*); a doctor of the Jewish law. (*See the following article.*)

Rabbinical Language and Literature. When the rabbis were driven by the Arabs from Babylon, at that time the head-quarters of Jewish erudition, and had established themselves in Europe, especially in Spain, and founded schools, they were soon incited, by the learned researches of the Arabs into the Arabic language, to examine their own language critically, which had degenerated from the old Hebrew to a corrupt Chaldaic dialect, and to bring it back to its original purity. They therefore endeavored to make the biblical Hebrew a written language again, but were not able, either to separate all the Chaldaic forms from the grammar, or to confine themselves to the proper significations of the words, since they were not sufficient to express all the new ideas which had arisen. Thus there sprung up a new Hebrew written language, which was used by the rabbis in Spain, Portugal, Italy and Germany, and was therefore called the *rabbinical language*. For the acquisition of this language, there have been grammars and lexicons, &c., prepared by Cellarius, Reland, Hardt, Tychsen, Buxtorf and others, and the labor of the study is repaid by the richness of the rabbinical literature, which may be learned particularly from the works of Buxtorf, Bartoloccius and Wolf. Among the authors during the most flourishing period of the middle ages, Aben Ezra, David Kimchi (who died about 1232), but especially Elias Levita, are celebrated as grammarians; Nathan Ben Jechiel and David Kimchi also distinguished themselves, the one by a lexicon of the Talmud, in 1100, which was several times printed, and the other by a Hebrew lexicon, which long retained a classical reputation. The first, who, after the researches of Aben Ezra, Maimonides (born 1139; see *Maimon*), Solomon Jarchi, and David Kimchi, undertook a great critical revision of the Pentateuch, in which the Masora was his guide, was Meyer Hallevi (Haramah) of Toledo, in the beginning of the thirteenth century; the rabbi Menachem de Lonzano (whose *Or Torah*, with the *Shete Jadoth*, was published in Venice, 1618), succeeded, and after him came Solomon Norzi, whose labors surpass those of all the preceding, in extent and thoroughness. Among the commentators on the Old Testament, the most conspicuous are Aben Ezra, a learned philologist, but obscure writer; Solomon Jarchi, a poor linguist, and also obscure writer (about 1180); Joseph Kimchi (1160), one of the most learned of the Jews, and his son, David Kimchi, Levi Ben Gerson (before 1370) and Isaac Arbarbanel (before 1508). Maimonides endeavored to aid the interpretation of the holy writings of his nation by philosophico-theological disquisitions; among the many commentators, he and Raschi were the most distinguished. The above-mentioned Levi Ben Gerson and Lipman of Mühlhausen (1399), wrote in defence of their faith. In respect to the geography of the middle ages, Moses Petachia of Ratisbon (before 1187), Benjamin of Tudela (in 1160), and Perizol of Avignon (about 1550), rendered much service by the descriptions of their travels. Mathematics, likewise astronomy, philosophy and medicine, were studied with great avidity by the Jews, especially in the schools of the Arabs in Spain; but as few of their scientific works are printed, we must be satisfied with referring to the oft-named Maimonides, who, as a philosopher, mingled the notions of Aristotle and Plato with the Cabala and the Talmud, but who, in his medical works (*Aphorismi*, and *De Regimine Sanitatis*), showed himself a follower of Galen.

Rabbit (*lepus cuniculus*). The rabbit differs from the hare (q. v.) in being of a smaller size, and having shorter ears and hinder legs. It is said to have been originally introduced from Spain into the various countries of Europe in which it is now found. In its wild state, the color of its fur is brown; its tail black above, and white beneath; but when domesticated, the colors vary much, being white, pied, ash-colored, black, &c. In England, rabbits are reared either in warrens or in hutches; the best situations for the former are sandy hills, on which the juniper is thickly planted, as the leaves of this shrub are eagerly eaten by rabbits, and impart a delicate and aromatic flavor to their flesh. If rabbits are kept in hutches, these places should be kept perfectly clean, or otherwise these animals will be sickly. They are extremely prolific, beginning to breed when about six months old, and producing young seven times a year, the litter usually consisting of eight. Should this happen regularly, the produce of one pair, in four years, would amount to the amazing number of 1,274,840. Rabbits are subject to two disorders, which often prove fatal to them,—the rot and a kind of madness. They are taken either by snaring them, or smoking them from their holes by the fumes of sulphur. Their fur is extremely useful in the manufacture of hats, and their flesh is more juicy than that of the hare. It is forbidden to be eaten by the laws of Moses and Mahomet.

Rabelais, François, a humorous and satirical French writer, author of *Gargantua* and *Pantagruel*, born at Chinon, in Touraine, about 1483, was the son of an apothecary, or, according to some, of an inn-keeper. Rabelais entered the Franciscan order at Fontenay-le-Comte; but the absence of all true learning soon disgusted him with this residence, and his satirical humor and some youthful indiscretions drew upon him the hatred of the monks. With the permission of Clement VII, he now entered the Benedictine order (about 1523), but soon after went to Montpellier as a secular priest, and afterwards studied medicine, received the degree of doctor, and taught and practised the medical profession. Remorse or fear induced him to procure, from Paul III, absolution for the violation of his monastic vows, and he spent some time as canon in the abbey of Saint-Maur-des-Fossés, where he was placed by the interest of his patron, the cardinal du Bellay, and where he is supposed to have written a considerable part of his *Pantagruel*. He was afterwards transferred to Meudon, as parish priest. He died at Paris, in 1553. Voltaire censures the *Gargantua* and *Pantagruel*, in which the taste of the age for the wonderful and the ignorance of the monks are severely satirized; but the buffoonery which it contains must be attributed to the spirit of the age, and not to the taste of Rabelais, who is, however, much below Cervantes in humor. He was one of the first to give flexibility and finish to the yet rude and harsh language of his country. Boileau calls him *la raison en masque*, and Rousseau, *le gentil maître François*. Rabelais was a conscientious teacher of his people, and it was his pleasure to instruct the children of his parish in sacred music. His house was the resort of the learned; his purse was always open to the needy; and his medical skill was employed in the service of his parish. His work cannot now be easily understood without glossaries and commentaries, the best of which is in the edition of Le Duchat, with engravings by Picart.

Rabener, Gottlieb William, a German satirist, was born in 1714, near Leipsic, and was controller of the taxes for the circle of Leipsic, until his death, in 1771. His works were republished several times; latest edition, Leipsic, 1771 (6 vols.). His life, by Weisse, appeared in 1772. He never allowed himself to indulge in personalities, but chastised folly in general. His satire would be considered rather tame in England or the U. States, where the party contentions incident to a free government give rise to violent abuse and biting ridicule unheard of in arbitrary governments. His works have been translated into French and Dutch. A report of his death became current long before his actual decease; so that he had the pleasure of learning what people said about him.

Raccoon (*procyon*). This animal is found in most parts of the American continent, though it appears to be more common to the north than to the south. Its color is grayish-brown, with a dusky line running from the top of the head down the middle of the face, ending below the eyes. The tail is very thickly covered with hair, and is marked by five or six annulations of black, on a yellowish-white ground. There are, however, several varieties as regards color. The size varies much according to the age and sex. A full-grown male may be stated to have the body about eighteen to twenty inches long, the head five inches, and the tail about eight inches in length. The female exceeds these dimensions; and, among the skins in the furriers' shops, some are found which much surpass the above measurements. In the wild state, the raccoon is savage and sanguinary, committing great slaughter among both wild and domesticated birds, as he always destroys a great number without consuming any part of them except the head, or the blood which flows from their wounds. The raccoon also will occasionally commit ravages in plantations of sugar-cane, or of Indian corn, especially while the latter is in a young state. This animal is a good climber, and, from the form of its claws, is enabled to adhere so firmly to a branch of a tree, that it requires no slight exertion of strength to disengage it. One of the most marked peculiarities of the raccoon, and on which its specific name of *lotor*, or the washer, is founded, is its habit of plunging its food into water before eating it. It is tamed without much difficulty while young, but is apt to become untractable and dangerous as it grows older. In the domesticated state, it is extremely restless and inquisitive, examining every thing; is extremely fond of sweet things, and will even partake of strong liquors, so as to become intoxicated; delights in hunting spiders, grasshoppers, snails and worms. Captivity, however, produces considerable changes in the habits of this animal; for, instead, as in a state of nature, of sleeping during the day, and roaming about at night in search of food, it will learn to be active during the day, and to remain quiet at night. When inclined to sleep, it rolls itself up into a kind of ball: in this position, it sleeps so profoundly as not to be readily disturbed. The fur is valuable, and forms no inconsiderable article of traffic. Its principal use is in the manufacture of hats. The female has from two to three young at a birth. Her den is usually in some hollow tree, or very secure situation.

Raceme, in botany; a particular arrangement of flowers, when they are arranged around a filiform simple axis, each particular flower being stalked.

Races. Horse races were customary in England in very early times. Fitz Stephen mentions them in the reign of Henry II. In the reign of queen Elizabeth, they appear to have been carried to such excess as to have injured the fortunes of the nobility. At that time, however, the matches were private, and gentlemen rode their own horses. In the reign of James I, public races were established. The horses were at that time prepared for running by the discipline of food, physic, airing, sweats and clothing which compose the present system. The weight, also, which each horse was to carry, was rigidly adjusted. The usual weight was ten stone, and the riders were weighed before they started. The prize was generally a bell. About the latter end of the reign of Charles I, races were performed in Hyde park. After the restoration, racing was much encouraged by Charles II, and a silver bowl or cup of the value of a hundred guineas, was allotted for a prize. Subsequent sovereigns have also encouraged racing. The sum of a hundred guineas is now given in lieu of the silver bowl. Fine and delicate horses, the natives of warm climates, excel in swiftness. The most perfect of these were originally found in Arabia; but their qualities may be improved in their descendants in a more fruitful country. The Arabians tried in England have never proved themselves equal in any respect, upon the course, to the English racers, descended from Arabian stock. The true test of thorough blood is not speed, but continuance. The speed and continuance of race horses is necessarily affected by the weight which they carry. It is said that, in running four miles, seven pounds make the difference of a distance, or 240 yards between horses of equal goodness. Weight is therefore regulated with scientific precision on the turf; and if the jockeys, or either of them, fall below the amount agreed upon, they are made to carry weights to make up the difference. The weights borne by race horses vary from the maximum twelve stone to a boy of the lightest weight. The usual trial of speed, in English racing, is a single mile; of continuance or bottom, four miles. It has been asserted that Flying Childers ran a mile over Newmarket in the space of a minute. The time was really a few seconds over a minute. Flying Childers, in 1721, ran four miles, carrying nine stone two pounds, in the space of six minutes forty-eight seconds. This wonderful animal leaped ten yards with his rider upon level ground, and is supposed to have covered, at every spring in running, a space of twenty-five feet, which is more than forty-nine feet in a second. Eclipse ran four miles in York in eight minutes, carrying a weight of twelve stone, or 168 pounds. Bay Malton ran over the same course in seven minutes and forty-three and a half seconds. The present system of training race horses is to commence operations at four o'clock in the morning, by brushing the horse over. This being done, and the horse having finished his corn, he is taken to exercise: he takes his walking and gallopping before and after water, according to his age, state of his flesh, &c. When he returns to the stable, whisping, leg-brushing, &c., ensue; afterwards feeding; and the door is closed, the horse being left to himself, free from all kinds of disturbance. This is finished as early in the day as possible. A similar process, but shorter, takes place three hours afterwards; at noon, brushing, feeding, &c., again, and the stable door is again closed for several hours, when similar operations to those of the morning are repeated; similar stable discipline follows, and the door is once more closed at six o'clock. At eight, the horses are fed and racked up. Their stables are often warmed by artificial heat. The administration of physic ought to depend upon circumstances. Immediately before the race commences, the jockeys are weighed, to see whether they are of the prescribed weight; and, immediately after the race is over, the weighing is repeated, to ascertain whether any of the weights have been dropped on the course. There is a great deal of fraud practised in the whole business of racing. The following are some of the laws observed on the turf. Horses take their ages from May day; that is, from the first day of the May next succeeding their birth. The term *catch weights* means that the riders are appointed by the parties without weighing. *Give-and-take* plates are twelve hands to carry a stated weight, all above to carry extra in the proportion of seven pounds for an inch. A *post-match* is to insert the age of the horse in the articles, and to run any horse of that age, without declaring what horse, till you come to the post to start. The horse that has his head at the ending post first, wins the heat. If a rider fall from his horse, the horse may be ridden in by a person that is sufficient weight, provided he go back to the place where the rider fell. Horses running on the wrong side of the post, and not turning back, are distanced; horses are distanced, if their riders cross and jostle, when the articles do not permit it. When three horses have each won a heat, they only must start for a fourth, and the preference between them will be determined by the event.

Races of Men. (See *Man.*)

Racine, Jean. This great French tragic poet, born Dec. 21, 1639, at Ferté-Milon, lost his parents when a child, and was educated in the abbey of Port-Royal-des-Champs. (q. v.) Here the future direction of his tastes was already indicated in his love for the old Greek dramatic poets, among whom Euripides was his favorite. From Port-Royal, Racine went to the college Harcourt, where he completed his studies. His first production was an ode on the marriage of Louis XIV, which procured him, through Colbert's mediation, a pension, afterwards increased to 2000 livres, and a present of 100 louis-d'ors. From this time, he continued to reside at Paris, on terms of friendship with Boileau, and devoted entirely to poetry. His first tragedy—*La Thébaïde, ou les Frères Ennemis*—appeared in 1664, and, although much inferior to his later works, was received with great favor. In this piece, he imitated Corneille; in his later ones, he followed a more independent course. His *Alexandre* (1666), though not approved by Corneille, was received with almost universal applause in Paris; and his *Andromache* (1668) was still more successful. Through all the faults of the latter production, the power of the poet is perceptible; and, from this time forward, Racine was generally preferred by his countrymen to Corneille, whom they had previously looked upon as inimitable. The ease and harmony of his versification, and his delineations of tender love, contributed mainly to this result. Racine replied to the tasteless criticisms of marshal Créqui and the count d'Olone by an epigram; but he had a more difficult struggle to sustain with St. Evremont, who was a sort of *arbiter elegantiarum* in France at that time. In 1638 appeared Racine's comedy *Les Plaideurs*, an imitation of the Wasps of Aristophanes, which makes us wish that its author had done more in that department. Historical truth is most accurately preserved in his *Britannicus* (1670). *Berenice* (1671), and *Bajazet* (1672), were the least successful of his pieces, and the least faithful in their historical coloring. *Mithridates* (1673) contains single scenes and situations of great merit. *Phèdre* (1677), and *Iphigénie*, which appeared two years earlier, are among the masterpieces of the French stage. In *Athalie* (1691), which at first was looked upon in France as an entire failure, Racine displays the whole compass of his genius. In 1673, he was received into the academy, and, several years later, was invited by Louis XIV to write, in connexion with Boileau, a history of his reign, and was named royal historiographer; but he did not proceed far in this work. After a mistaken piety had withdrawn the poet from the theatre, he wrote *Esther*, at the request of Madame de Maintenon. It was received by the court, now sunk into an abject superstition, with the greatest applause, having been represented by the pupils at St. Cyr, in 1689. Racine had hitherto enjoyed the favor of the court; but, having fallen into disgrace with the king, he died of chagrin, April 22, 1699. The cause of his disgrace was a treatise upon the sufferings of the people in consequence of the prodigality of the government, written by the direction of Madame de Maintenon, and which offended a monarch who was accustomed only to flattery. An edition of his works by Boisgermain appeared in 1767, and a more complete one by Lenormand in 1808. In forming an estimate of Racine's genius, we must distinguish the faults of his situation from those of the writer. (See *France, Literature of*, division *Dramatic Poetry.*) A certain stiffness and coldness; subjects drawn from Grecian and Roman antiquity, and treated with the French gallantry and polish; a strict adherence to rules, which forbids all lyric freedom, or even romantic coloring; and the faults which arise from these circumstances, instead of detracting from Racine's merit, tend to elevate our opinion of him. He availed himself, with great skill, of all the means afforded by the narrow field which was left open for a French tragic poet, to elevate the tone of feeling and the action. His tenderness in the delineation of the passion of love is unsurpassed, and none, before or since, has better depicted the conflict of contending passions. In harmony of versification and grace of expression, he is inimitable.

Rack. (See *Arack*, and *Torture.*)

Radcliffe, Ann, an eminent novelist, was born in London, in 1764. Her maiden name was Ward, and, at the age of twenty-three, she was married to William Radcliffe, proprietor and editor of the English Chronicle. Mrs. Radcliffe's first performance was a romance, entitled the Castles of Athlen and Dunblaine, and the next the Sicilian Romance; but the first of her works that attracted much attention was the Romance of the Forest, which was followed by the Mysteries of Udolpho, which placed her at the head of a department of fiction then rising into esteem. Her last work of this kind was the Italian. She also published a volume of Travels through Holland and along the Rhine, in 1793. Mrs. Radcliffe possessed the art of exciting a high degree of interest in her narrative: her descriptive powers were of a superior order, especially in the delineation of scenes of terror, and in those aspects of nature which suggest tender or melancholy associations. She died in London, in 1823. (See Scott's *Lives of the Novelists.*)

Radcliffe, John, a celebrated medical practitioner, born in 1650, at Wakefield, in Yorkshire, where his father possessed a moderate estate, was educated at Oxford. He became doctor of physic in 1682, and removed to London in 1684. He soon acquired great reputation, to which his conversational powers contributed; for, having a ready wit and a strong tincture of pleasantry, he was a very diverting companion. In 1686, he was appointed physician to the princess Anne of Denmark; and, after the revolution, he was often consulted by king William III, whose favor he lost in consequence of the freedom of speech in which he indulged himself. In 1699, the king, on his return from Holland, finding himself very unwell, sent for doctor Radcliffe, and showing him his ankles, swollen and œdematous, while his body was much emaciated, said, "What do you think of these?" "Why, truly," replied the physician, "I would not have your majesty's two legs for your three kingdoms." He was no more consulted by that prince; and, when Anne succeeded to the crown, lord Godolphin in vain endeavored to get him reinstated in his post of chief physician, as he had given her offence by telling her that her ailments were nothing but the vapors. But, though deprived of office, he was consulted in all cases of emergency, and received a large sum of secret service money for his prescriptions. He died Nov. 1, 1714. Doctor Radcliffe left £40,000 to the university of Oxford for the foundation of a public library of medical and philosophical science, which was erected.

Radical Reformers. (See *Reform, Parliamentary.*)

Radish (*raphanus sativus*); a well known esculent root, universally cultivated in temperate climates, and in daily use. Several varieties have been produced by long cultivation, differing in the form, size and color of the roots; either turbinate or round, spindle-shaped; annual or biennial; white, red, violet or blackish externally, but always white within. The taste is more or less pungent in these different varieties; but they are good only when young, becoming hard, woody, and hollow, with age. The radish requires a deep, loose soil to attain perfection, and it may be produced successively throughout the year, by sowing monthly. It is of easy culture, but, during extreme heats, frequent irrigation is necessary, which renders the roots more mild and tender. The seed will keep five or six years. The stem of the radish is herbaceous, upright, two or three feet high, and rough, with short hairs. The leaves are alternate, the superior ones simple and sessile, the inferior lyrate, divided into oval or rounded lobes, toothed on the margin, with the terminal lobe much the largest. The flowers are white or purplish, disposed in terminal racemes. The pods are cylindrical, acuminated with the style, indehiscent, and swelling into knots, and contain rounded seeds. These seeds are oleaginous, and in one variety, lately introduced from China, the oil is extracted and used for culinary purposes. Radishes are antiscorbutic and stimulant, but are little employed in medicine. The plant was originally brought from China and Persia, but has been cultivated in Europe from time immemorial.—The wild radish, or charlock (*R. raphanistrum*), is a troublesome weed in grain-fields in the U. States, as well as in Europe, its native country. The flowers are yellow.

Radius, in geometry. (See *Diameter.*)

Raffaello. (See *Raphael.*)

Raffle; a game of chance, in which several persons deposit each part of the value of a thing for the chance of gaining it. The winner takes the whole.

Raffles, sir Thomas Stamford, the son of a captain in the West India trade, was born at sea, off Jamaica, in 1781. His father placed him for education at Hammersmith, where he remained till he was appointed to a clerkship in the India house. In 1805, the secretary to the board procured him the situation of assistant-secretary to the new government of Prince of Wales's island, and he was soon after appointed Malay translator to the government. In 1810, his reputation procured him the appointment of agent of the governor-general with the Malay states; and, the following year, on the reduction of Java, he was nominated lieutenant-governor of the island. In this capacity he continued till 1816, when he returned to England, with an extensive collection of the productions, costume, &c., of the Eastern archipelago. The year following, appeared his History of Java (new edition 1830). In 1817, he was nominated to the residency of Bencoolen, in Sumatra, with the honor of knighthood, and the lieutenant-governorship of Fort Marlborough. Here he remedied many disgraceful abuses. In 1823, he laid the foundation of a literary institution, consisting of a college for the encouragement of Anglo-Chinese literature. In the following year, he embarked for Europe; but, a fire breaking out in the ship, the vessel was destroyed at sea, the crew and passengers saving their lives with difficulty in the boats, and relanding in a state of utter destitution, about fifteen miles from Bencoolen, after passing a night on the ocean. He embarked again for London in the same year, and died in 1826. In 1830, appeared a Memoir of his Life by his Widow (4to.).

Rafflesia. This gigantic flower was discovered not many years since in the interior of Sumatra. It is very rare there, and is parasitical, growing on the *cissus angustifolius*. The whole plant seems to consist of little else beyond the flower and root. It is diœcious, and the female flowers are unknown. The calyx, or corolla, consists of a ventricose tube, crowned with a ring, and divided at the summit into five equal lobes. The stamens are very numerous. The stem, which hardly rises above the root, is fleshy, and covered with very large, obtuse, imbricated bracts. The diameter of the flower is three feet, and some parts of the calyx or corolla are three fourths of an inch in thickness. No other flower in the vegetable world at all approaches these dimensions. The *R. horsfieldii* is a second species of the genus, with a much smaller flower.

Raft; a sort of float, formed by a body of planks or pieces of timber fastened together side by side, so as to be conveyed down rivers, across harbors, &c., more commodiously than if they were separate.

Rafters, in building, are pieces of timber, which, standing by pairs on the raising piece, meet in an angle at the top, and form the roof of a building.

Ragotski, Francis, second of the name, prince of Transylvania, was born in 1676. On the death of his father, he was carefully watched by the house of Austria; but he secretly entered into a negotiation with Louis XIV, which being betrayed, he was found guilty of high treason. Having made his escape from prison, and received assurances of succor from France, he entered Hungary, and published a manifesto, urging the people to free themselves from the tyranny of the Austrians. He was joined by a great number, and stormed some fortresses, taking a severe revenge upon the imperialists, who had given no quarter to the Hungarian insurgents. In 1704, he was proclaimed prince of Transylvania and protector of Hungary. He soon, however, felt the difficulty of opposing the arms and policy of a powerful sovereign, especially as Louis could not render him much assistance. He also found a rival in his friend and associate, count Bercheni; and, in consequence of a severe check, his troops began to desert. In 1711, a treaty was concluded between the Hungarian states and the emperor, to which he refused to accede, though the first article secured his life and property, with the title of *prince of Transylvania*. Deeply wounded at this defeat of his patriotic wishes, he withdrew into Turkey, where he died in 1735. He wrote Memoirs of his Life, published in the *Révolutions de Hongrie* (Hague, 1739). There is also a work, but of doubtful authenticity, entitled *Testament Politique et Moral du Prince Ragotski.*

Rags. The value of the rags imported into the U. States in the year ending Sept. 30, 1830, was $77,661. (See *Paper.*)

Ragusa; capital of a circle of the same name in Dalmatia (q. v.), lying on the Adriatic, in lat. 42° 36′ N.; lon. 18° 11′ E.; population 6500. It was formerly a republic, with a territory of 500 square miles, and 60,000 inhabitants, which was founded in 656. Its most flourishing period was from 1427 to 1440, and it preserved its liberty by the payment of a tribute to the Porte. In 1806, although the republic observed the strictest neutrality, it was taken possession of by the French, and, in 1811, was incorporated with the government of Illyria. In 1814, it was occupied by Austrian troops. Napoleon conferred the title of "duke of Ragusa" on marshal Marmont. (q. v.)

Ragusa, Duke of. (See *Marmont.*)

Raik. (See *Caliph*, vol. ii, p. 411.)

Raikes, Robert, a printer and philanthropist, was born at Gloucester in 1735. His father was proprietor of the Gloucester Journal, and the son succeeded him in the printing business; and, having realized a good property, he employed it with his pen and his influence in relieving such objects as stood in need of his benevolent assistance. He is, however, best known for his institution of Sunday schools, which he planned, conjointly with the reverend Mr. Stock, in 1781. Mr. Raikes died at Gloucester in 1811.

Rail-Ways. The most perfect of the Roman roads, as the Appian way, which is a continued plane surface formed by blocks of stone closely fitted together, was a near approach to the modern rail-road; but the plans of the two species of road are very different. The first rail-ways, formed on the plan of making a distinct surface and track for the wheels, seem to have been constructed near Newcastle, upon the river Tyne, in England. In Roger North's Life of Lord Keeper North, he says, that at this place (in 1676) the coals were conveyed from the mines to the banks of the river, "by laying rails of timber exactly straight and parallel; and bulky carts were made with four rollers fitting those rails, whereby the carriage was made so easy that one horse would draw four or five chaldrons of coal." One hundred years afterwards, viz. about 1776, Mr. Curr constructed an iron rail-road at the Sheffield colliery. The rails were supported by wooden sleepers, to which they were nailed. In 1797, Mr. Barns adopted stone supports in a rail-road leading from the Lawson main colliery to the Tyne, near to Newcastle; and, in 1800, Mr. Outram made use of them in a rail-road at Little Eaton, in Derbyshire. Twenty-five years afterwards, this species of road was successfully adopted on a public thoroughfare for the transportation of merchandise and passengers, viz. the Stockton and Darlington rail-road, which was completed in 1825, and was the first on which this experiment was made with success. From that time, accordingly, a new era commenced in the history of inland transportation.

Route. The first inquiry presenting itself in respect to a rail-road between two points, relates to the choice of a route, where the nature of the territory permits of any such choice. In making this election, the comparative distances, the amount of intermediate transportation to be accommodated, the character of the soil as to affording a good foundation, the excavations and embankments necessary to be made in order to bring the road within a certain scale of inclination, and the difficulty or facility of obtaining suitable materials for the construction of the road, are all to be taken into consideration. These investigations and comparisons cannot be too rigidly and minutely made; and it has been suggested by experienced engineers, that, in some of the roads of this description constructed in the U. States, great mistakes will be found to have been made in this respect, in consequence of too great precipitancy in fixing on a route.

Grading. The scale of inclination to which the road is to be reduced, is necessarily taken into consideration in fixing upon a general route; but still a choice often presents itself in parts of such route, between the expense in reducing the rate of inclination by excavations and embankments, and the saving of expense by taking a more circuitous route. Another question also presents itself, namely, whether to reduce an acclivity, or to surmount it; and the manner of overcoming it is a subject of inquiry at the same time; for, the surface of the ground having been examined and the route determined, on a general scale of inclination, within which the ordinary power used for transportation is to be applied, the whole line is either to be brought within this scale, or, if an inclination exceeding it is admitted, it is to be overcome by the use of an extra power. In such case, if the extraordinary expense of reducing the inclination is not so great that the interest upon this part of the original outlay would exceed the additional expense of the use of an extra power to overcome an inclined plane, it will be a decisive reason in favor of reducing the inclination. The amount of transportation to be accommodated will determine, in a great degree, the expense of the extra power requisite to overcome a given inclined plane. Another circumstance to be considered is, whether the extra power to be used is that of horses, or steam, or water; for the two former are comparatively more expensive for a small than for a large amount of transportation, owing to the cost of maintaining them; but the difference is not so great where a water power can be used. In some cases, it may be better to make deflections in the road, than to reduce inclinations, or to use extra power. This will depend on the kind of transportation and the importance of celerity; for if the object is mainly the transportation of increased weight by the same power, without regard to the time, any deviation from a direct course is less objectionable. But upon lines of public travel, despatch is of great importance.

Rails. Supports. In the recently constructed rail-roads in England, the iron rails are in general supported by iron chairs or props, at a distance of about three feet from each other; in most of those hitherto constructed in the U. States, the rail is supported by a continued line of wood or stone. Where the rails rest on a line of wood, the track must be comparatively imperfect, since the wood will yield to the weight of the load transported, and be slightly compressed as the wheels pass, thus offering a continual resistance. Where successive parts of the track are formed by laying iron rails upon pine, oak, and stone, the difference of power necessary to move the same load on the different parts, will be evident in the different degrees of exertion made by the horse, where this power is used. Accordingly, if a soft species of wood is used to support the iron rail, it is a great advantage to interpose a line of oak or other hard wood. A rail continuously supported by a line of stone will not yield to the weight of the load; and where the rail is supported at successive points by chairs, it is always intended to be of such strength, that it will not be sensibly bent by the weight. The plan of supporting by chairs has been very thoroughly tried in England, and so much improved, that a very perfect track may be now (1832) formed in this way. Continued lines of granite or other durable stone, are now in use on a number of rail-roads in the U. States, but cannot, as yet, be considered to be so thoroughly tested, though the results of the experiments are thus far very favorable. It was apprehended, at first, that the action of the wheel would draw or flatten the iron plate; but it has been found by experience, that this effect is not produced. The principal difficulty in the use of this kind of track, was in the fastening of the rail to the stone, the nails used for this purpose being liable to be loosened or cut off by the expansion and contraction of the iron rail. This defect has, however, been partially remedied by making oval holes in the rails for the fastenings, thus allowing a little longitudinal motion of the rail without injury to the fastenings. A question was heretofore made, whether cast iron or malleable was the best material for the rail. Cast iron rails do not so easily bend, and the same weight of iron is also much cheaper. But they are more subject to be broken by sudden jars and blows, and a much greater weight must be used in order to obtain the requisite strength. It was at one time supposed, that the action of the wheels on rails of malleable iron would cause them to exfoliate in thin laminæ, and that thus they might be subject to greater waste than those of cast iron. But this has proved to be a mistake. It has also been further proved, that if a bar of iron be cut into two equal pieces, and one of them be laid on a rail-road, and used for a track, and the other laid by the side of the road, and exposed to the action of the atmosphere, and not used at all, the latter will waste and lose weight much more rapidly than the former. The loss of malleable iron rails by use, is less than that of cast iron ones. Mr. Wood states the following comparison of the two Malleable iron rails, 15 feet long, were used on the Stockton and Darlington rail-way; over which locomotive engines passed, weighing from 8 to 11 tons, and wagons with their loads weighing four tons: 86,000 tons passed over the rails in one year, exclusive of the weight of the engines and wagons. A rail 15 feet in length, weighing 136½ pounds, lost in the year eight ounces, or $\frac{1}{273}$ part of its weight; and the loss was the same in a similar rail over which only empty wagons passed. A cast iron rail four feet long, weighing 63 pounds, over which wagons passed, weighing four tons each when loaded, and on which the same number of tons, besides the wagons, was transported in a year, lost eight ounces, being $\frac{1}{126}$ part of the whole weight of the rail, or more than twice as great a proportion as the former. The inclination of opinion is, accordingly, from these circumstances, very strong in favor of the use of malleable iron rails. Plate rails were first used, which presented a flat surface to the wheel; but what are denominated *edge rails* have since come into use, and, according to Mr. Wood, are preferable, on account of their presenting less resistance to the wheel, and being less subject to injury and destruction by use. The upper surface of the edge rail has a slight transverse curve, so as to be highest in the central line of the track, and to fall off by degrees towards each side of the rail, thus presenting no angle. Where the iron rail is supported by chairs at distances of three, or three and a half feet from each other, the rail will evidently require to be of greater strength in the centre between the supports, if it be proposed to form the rail so that it shall be able to bear the same weight in every part; and it would evidently be a waste of material to form it upon any other plan. The rail ought, also, to be stronger at the same point, in order to resist any lateral pressure, as the cars, in moving over the road, will necessarily be sometimes propelled against one or the other side of the road; which makes it necessary to strengthen the central part of the rail laterally, to prevent its being broken or bent by such lateral pressure. The rails are accordingly formed upon this principle, the size and weight of iron increasing from each support towards the centre. In the tram rail-ways, plate rails are used, with a perpendicular plate, or rim, at the outside edge of the rail, of two or three inches in height, to confine the wheels upon the rail-road. But this mode of keeping the carriage upon the road is not necessary; for, whether the rail be of the plate or of the edge form, the wheels of the carriages may be confined to the road equally well by a flange, or projection at the periphery of the wheel, on the side next the centre of the road. In the mode of joining the rails, very important improvements have been made since the introduction of rail-roads into more general use. The rails were, at first, only about three or three and a half feet in length, and fastened in the chairs by a pin running horizontally through each end of the rail, there being two holes in each chair for the admission of two pins for this purpose, one for the end of each rail, so that the fastenings were distinct. The consequence was, that if the chair did not stand upon a perfectly firm foundation, but upon one that yielded on one side, so that the chair leaned in the line of the road, one of the pins, and consequently the end of the rail fastened by it, would be depressed below the other, thus making a sudden break in the surface of the track, which would cause a jolt as the wheel passed over it, to the injury of both the road and the carriages, and the inconvenience of passengers. Mr. Wood says this defect was very frequent on rail-roads constructed upon this plan. It has been remedied by making the rails join by lapping with what is called the *half-lap*, and fastening the ends of both rails by one pin; so that, although a chair should lean in the line of the road, or be a little depressed below the others, still the two rails would present a smooth surface at their junction. The injury and inconvenience occasioned by the imperfections of the junctions of the rails were still further remedied by making the rails twelve or fifteen feet in length, supported at short distances as before, the form and dimensions of each part of the rail between any two supports being constructed as already described; by which means the number of junctions was reduced to one fourth or fifth of their former number. This was a very great step in the improvement of this species of road. An improvement, of great utility, has also been made in the mode of fastening the rails, by dispensing with the use of pins, which were liable to work loose. There are various forms of constructing the rails and chairs for this purpose, but they all agree in principle. One mode is by making a depression in the chair on one side of the rail, into which a projection from its lower side precisely fits. If the rail is held close upon that side, it is thereby fixed to the chair, and can be moved only with the chair itself; and it is so held by driving a key or wedge along the opposite side of the rail, between the rail and the side of the chair projecting upon the side of the rail.

Chairs. Fastenings. In describing the rails, the supports or chairs have been partly described. They are of iron, with a broad, flat base, supported upon blocks of stone, into which holes are drilled, and filled with wooden plugs. The chairs are fastened to the stone blocks by nails driven into these plugs. This stone block should rest firmly upon its base, and not be liable to change of position by frost or any other cause; and, accordingly, great care has been taken to make these supports firm.

Turn-outs. If all the wagons upon a rail-road, whether for the transportation of passengers or merchandise, were to travel at the same time, and at the same speed, two sets of tracks would be sufficient to accommodate the whole, as there would be no necessity of their turning out to pass each other. But in the transportation of passengers, greater speed is desirable than in the transportation of merchandise; for the transportation of merchandise, whether by horse power or steam power, can be done more economically, and with less injury to the road, at a low than a very high rate of speed. It is, therefore, a very considerable object, in rail-roads upon lines of public travel, to allow wagons to pass others travelling in the same direction. Provision must be made, accordingly, for turning out. This provision is particularly necessary in case of a road with a single set of tracks, on which the carriages must meet. These turn-outs are made by means of a movable or switch rail at the angle where the turn-out track branches from the main one. This rail is two or three feet, more or less, in length, and one end may be moved over that angle, and laid so as to form a part of the main track, or the turn-out track. The switch rail is usually moved by the hand, so as to form a part of that track on which the wagon is to move.

Carriages. Wheels. The bodies of the wagons will, obviously, require to be constructed with reference to the kind of transportation. The principal consideration, in regard to the construction of the carriages, relates to their bearings on the axle and the rim of the wheel. The rule given by Mr. Wood, as to the bearing on the axle, is, that in order to produce the least friction, the breadth of the bearing should be equal to the diameter of the axle at the place of bearing. This diameter must be determined by the weight to be carried; and the breadth of the bearing will accordingly vary with it. The objection to the plate rail, as already stated, is, that the breadth of the bearing of the rim of the wheel upon such a rail, causes an unnecessary additional friction; and the resistance to the wheel is increased in consequence of the greater liability of such a rail to collect dust and other impediments upon its surface. The edge rail is preferable, in these respects; but, at first, these rails were liable to one difficulty, in consequence of their wearing grooves in the rim of the wheel, so that the friction was continually increasing, and the wheel soon became unfit for use. To remedy this defect, the rims were case-hardened, or chilled, by rolling them, when hot, against a cold iron cylinder. Wheels so case-hardened are found to be subject to very little wear. It was, at first, objected to the use of iron wheels, that they would not take sufficiently strong hold of the rails to draw any considerable load after them, and that therefore they would not answer for the use of locomotive engines. Where horses are the motive power, it is evident that if the horse draws the car to which he is attached, the others fastened to it must follow, it being no objection that either the wheels of the carriage to which the horse is harnessed, or of those of the train following, do not take hold of the rails, but, on the contrary, the less hold they take, the more easy it will be to move the train. But where one carriage is impelled forward by the action of the engine in turning the wheels, and the following train of wagons is drawn by the engine car, if the resistance by gravity and friction is greater than the force with which the wheels adhere to the rails, the engine will only revolve the wheels to which it is geared, which would turn upon the rails, and the car and whole train remain stationary. To prevent this, different contrivances were heretofore resorted to, one of which was to let teeth project from the sides of the wheels to interlock with rack-work on the side of the rail. It has, however, been found, in practice, that, for the ordinary inclinations of rail-roads, to the extent of about thirty feet per mile, the wheels may be so constructed as to move a train of wagons by their mere adhesion to the rails. The inclination which can be so overcome must evidently depend on the kind of surfaces of the rim of the wheel and the rail, the weight bearing upon the wheels, the weight to be moved, and the resistance from the friction of the train of wagons; so that no precise rule can be given that shall be applicable to roads and wheels of different materials and construction. One of the first expedients for increasing the adhesion of the wheels to the rails, without incurring any considerable loss by additional weight or friction, was to gear the four wheels of the engine car together, so as to have the advantage of the friction of all of them upon the rails; for, if the piston of the engine is connected by gearing only with the wheels of one axle, a resistance in the other wheels of the engine, and by the whole train, only equal to the friction of those two wheels, can be overcome. By gearing the piston of the engine with the four wheels, by means of an endless chain passing round the two axles upon two cog-wheels, or by otherwise gearing the four wheels together or to the piston, the hold of the wheels on the rails is doubled. For the same purpose, an additional set of wheels, making six in the whole, for the engine car, is sometimes added; but such an addition to the number of sets of wheels is evidently attended with disadvantages on the score of expense, complication of structure, weight to be moved, and friction of parts to be overcome. The advantage proposed by adding another set of wheels is, that a greater weight may be carried by the engine car, thus making a greater adhesion to the rails by the wheels geared together, without throwing so great a weight upon any of the wheels as to injure the road. But resort is rarely had to this expedient. An improvement, having the same object, and attended by no loss from addition of weight or friction, is a contrivance for securing the adhesion of all the wheels to the rails; for it will be obvious that, if the two axles of the two sets of wheels are fastened to a strong unyielding car frame, the car will rest upon three wheels, whenever the surface of the road does not precisely correspond in relative altitude to the lower points in the rims of the wheels; that is, if the surfaces of the rails are precisely in the same plane, and the bearing surfaces of the rims of the wheels are also precisely in the same plane, all the wheels will rest upon and take hold of the rails, whether the axles are fastened to an unyielding frame or not. But no road or carriage can be so perfectly constructed, that the surfaces of the rails and bearings of the wheels can always exactly correspond. Mr. Knight, the chief engineer of the Baltimore and Ohio railroad, says, in his report of October, 1831, that the whole weight of a wagon, with an unyielding frame, will frequently be supported on two only of the four wheels, thus making a load bear twice as much upon one part of the rail, as it would do if its weight were equally supported by the four wheels. To remedy this difficulty, the whole weight carried upon the axles is supported by springs, or some interposed elastic power, that of the condensed steam being taken advantage of for the purpose in some cars, whereby each wheel is pressed upon the rail, though the relative surfaces on which the wheels may bear, on different places in the road, may vary. Mr. Knight, in the same report, makes a suggestion worthy of consideration in the construction of wagons, as well as engine cars. He proposes that in all cases the weight should be supported on springs, not only for the purpose of distributing the weight equally, but also to prevent shocks and jars, whereby both the road and carriages are injured. Another expedient to secure a sufficient adhesion of the wheels to the surfaces of the rails, is to use wheels for the engine car that are not case-hardened.

The experiments stated by Mr. Tredgold and Mr. Wood show a very great advantage in the use of large wheels. Mr. Wood states that the motive power required to overcome the same friction of rubbing parts of the car and engine, in case of wheels four feet in diameter, is less by one fourth than in case of those three feet in diameter. But there is some limit to the extent of this advantage; for an increase of the diameter of the wheel adds to the weight, and the expense of construction, so that wheels of not more than four or five feet in diameter are ordinarily used, and a great part of those in use are not above two and a half feet. Some of the locomotives used on the Liverpool and Manchester rail-road have sets of wheels of different sizes, the diameter of one being nearly double that of the other. The state of the rail will have some effect upon the adhesion of the wheels, which is least when the rails are slightly wet. The experiments of Mr. Booth, on the Liverpool and Manchester rail-road, prove that in the most unfavorable state of the rails, the adhesion of wheels of malleable iron upon rails of the same material, is equal to one twentieth of the weight upon them. The locomotives vary in weight, from three or four to ten or eleven tons. A locomotive, with its apparatus and appendages weighing four and a half tons, will adhere to the rails with sufficient force to draw thirty tons weight on a level road, at the rate of fifteen miles per hour, and seven tons up an ascent of one in ninety-six, or fifty-five feet in a mile; at a slower rate, it will draw a greater weight. The slower the rate of travelling is, the greater is the weight that may be supported by the same wheel, without injury to the road from shocks, though the weight must of course be limited by the size and strength of the rails, whether the rate of motion be quick or slow.

Curvatures in the Road. The curvatures of the rail-road present some obstructions, since, the axles of the car and wagons being usually fixed firmly to the frames, every bend of the tracks must evidently cause some lateral rubbing, or pressure of the wheels upon the rails, which will occasion an increased friction. If the wheels are fixed to the axles, so that both must revolve together, according to the mode of construction hitherto most usually adopted, in passing a curve, the wheel that moves on the outside or longest rail must be slided over whatever distance it exceeds the length of the other rail, in case both wheels roll on rims of the same diameter. This is an obstruction presented by almost every rail-road, since it is rarely practicable to make such a road straight. The curvatures of some roads are of a radius of only 300, and even of 250 feet. The consequence was that the carriages heretofore in use were obstructed, not only by the rubbing of the surfaces of the wheels upon the rails, already mentioned, but also by the friction of the flange of the wheel against the side of the rail. This difficulty has, however, been in a great measure remedied by an improvement made by Mr. J. Knight, chief engineer of the Baltimore and Ohio rail-road, which is an important event in the progress and history of this mode of transportation. The improvement is as admirable for its simplicity and facility of application, as for its efficiency. It consists in a change in the form of the rim of the wheel. The part on which this rim ordinarily rolls on the rail, is made cylindrical, this being the form of bearing evidently the least injurious to the road, as the weight resting perpendicularly upon the rails has no tendency to displace them or their supports. But between this ordinary bearing and the flange, a distance of about one inch in a wheel of thirty inches diameter, he made the rim conical, rising towards the flange one sixth of an inch, and thus gradually increasing in diameter. Wherever the road bends, the wheel, rolling on the exterior, and, in such case, longer track, will, in consequence of the tendency of the carriage to move in a right line, be carried up a little on the rail, so as to bear upon the conical part of the rim, which gives a bearing circumference of the wheel on that side, greater than that of the wheel at the opposite end of the same axle. The tendency, accordingly, is to keep the car in the centre of the tracks, by producing a curvilinear motion in the wagon, exactly corresponding to the curve of the road. In the report made by Mr. Knight in 1830, he says that a car, with wheels such as those already described, was run upon a part of the Baltimore and Ohio rail-road, where the greatest curvatures were of a radius of 400 feet, at the rate of fifteen miles per hour. In his report of October 1, 1831, Mr. Knight says that the additional friction on such a curve, above that on a straight road, is 1 in 1418, equal to 3.72 feet in a mile, with Winans's car, and 1 in 356, equal to 14.83 feet in a mile, with another car. If the diameter of the wheel is increased, that of the conical part of the rim should be increased also, making the rise of the conical part between the flange and the cylindrical part (as Mr. Knight estimates in his report of February 1, 1830), one fifth of an inch in a wheel of three feet diameter, and one fourth of an inch in a wheel of four feet diameter. In his report of October 1, 1831, he says he had changed the ratio of the conical part of the rim, on wheels of the same size, from that of one to six, to that of one to five, and had increased the length of the conical part to 1$\frac{3}{16}$ inch; and that he thinks the form of the rim was thereby improved. In the same report, Mr. Knight describes a method of turning a very short curve of a quadrant of a circle on a radius of sixty feet, by making a plate with a groove for the flange of the wheel on the longer track to run in; thus, in this case, making the difference of the rolling circumference of the wheels correspond to that of the two tracks. This plan was adopted for the purpose of turning corners of streets in towns, and, from experiments that have been made, promises to be successful.

Inclined Planes. Where the inclination of the road is greater than that for which the ordinary power is calculated, the ascent must be effected by means of an additional power, the amount of which can be readily computed, since, in those parts, no additional friction of the cars or wheels is to be provided for, and only the additional resistance arising from gravity is to be overcome. If, for instance, the additional inclination is one in ninety-six, or fifty-five feet in a mile, the additional power must be to the weight as one to ninety-six, or as fifty-five to the number of feet in a mile, namely, 5280. In descending planes, so much inclined that the gravity would move the carriages too rapidly for safety, the velocity is checked by means of a break, which consists of a piece of wood of the same curvature as the rim of a set of the wheels, upon which the break is pressed by means of a lever, so adjusted as to be within reach of the conductor, in his position on the carriage.

Power. Gravity, horse power, and steam power, have been used on rail-roads. Where the road is sufficiently and uniformly descending in one direction, gravity may be relied upon as a motive power in that direction; but on rail-roads generally, some other power must be resorted to in each direction. At the time of the construction of the Liverpool and Manchester rail-way, much discussion took place, as to the expediency of using stationary or locomotive steam-engines. The result of the deliberations was, that if locomotives could be constructed within certain conditions as to weight and speed, they would be preferable. The directors accordingly offered a premium for the construction of such a locomotive, as should perform according to the conditions prescribed. At the celebrated trial on that road in October, 1829, of which Mr. Wood gives a particular account in the edition of 1831 of his work on rail-roads, the locomotive, called the *Rocket*, constructed upon the plan of Mr. Robert Stevenson, was found to come within the proposed conditions, and accordingly the decision, in respect to that road, was in favor of locomotives. The opinion in favor of this kind of power on roads of which the inclination does not exceed about thirty feet in a mile, has become pretty fully established. Stationary power can be used to advantage only on lines of very great transportation, as the expense is necessarily very great, and almost the same, whether the transportation be greater or less. Another objection to the use of stationary power is, that its interruption, in any part, breaks up the line for the time, which is not necessarily the case with a locomotive. The alternative, accordingly, is between the use of locomotive steam engines or horses, and the choice must be determined by the particular circumstances of the line of transportation. The advantages of this species of road are illustrated by the action of a horse upon it, compared with his performance upon the best turnpike, being, as Mr. Wood assumes in one of his estimates, in the proportion of 7.5 to 1; thus enabling us to dispense with thirteen out of fifteen horses required for transportation on the best common roads. The horse's power of draught is much the greatest at a low rate of speed, since the more rapid the velocity, the greater proportion of his muscular exertion is required to transport his own weight. But it is ascertained, on the Baltimore and Ohio rail-road, that a speed of ten miles an hour may be kept up by horses travelling stages of six miles each, which would perform the whole distance between Baltimore and the Ohio river in thirty-six hours. The whole expense of transportation by horse power, including cars, drivers, and every expense except repairs of the road, on the same rail-road, from January to September, 1831, amounted to about one third of the gross tolls received; and this expense, it was calculated, might be very materially reduced. The average consumption of coke by a locomotive engine, on a passage from Liverpool to Manchester, thirty-two miles, is stated by Mr. Wood to be 800 pounds, and the water evaporated 225 gallons per hour, and 450 gallons on the passage. Mr. Wood computes that one of those locomotives will perform the work of 240 horses travelling at the rate of ten miles per hour upon a turnpike road, the velocity of the locomotive being fifteen miles per hour. The fact is well established, that where the transportation is sufficient for supplying adequate loads for locomotive engines, and where the road is so constructed that they can be advantageously used, and where fuel is not exceedingly expensive, they afford much the most economical motive power. Mr. Robert Stevenson, in a communication to the agent of the Boston and Lowell rail-road, estimates that the most advantageous speed is that of fifteen miles per hour for passenger trains, and seven miles for those transporting merchandise. A reason for adopting a lower speed for the latter, is, to prevent injury to the road by the heavily loaded wheels.

The following is an account of the principal rail-roads projected, constructing or finished, in Europe and the U. States:—

England. There are an immense number of iron rail-ways, branching in various directions from both sides of the river Tyne to different coal-works, and also several inclined planes, on which the wagons are moved by stationary engines. The rails used are edge rails. On the level rails, one horse draws 25,500 pounds, including the weight of the wagon, at the rate of two and a half miles per hour. Rail-ways are also employed for conveying coals from the collieries to the river Wear, at Sunderland, some of them extending to a distance of more than seven miles.—The *Hetton rail-way* extends from Sunderland, on the river Wier, to the Hetton collieries. It is seven and five eighths miles in length. The transportation is effected by locomotive engines. The total elevation and depression from the pit to the staiths is 812 feet, of which a part is accomplished by inclined planes and stationary reciprocating engines, and the rest by a regular descent of 1 part in 335. The rails are of cast iron, and of the edge kind. The extreme length of each rail is three feet eleven inches, and the breadth of the upper surface two and a half inches. They join with a scarf joint. The rails of the straight parts of the rail-way weigh sixty-one pounds each: in the curved parts, they weigh seventy-two pounds each. In some parts near the staiths, malleable iron rails are used in fifteen feet lengths, supported at every three feet. They are three and a half inches deep in the middle between the supports, and two and one fourth inches in breadth at the upper surface. One yard in length weighs about twenty-eight pounds.—The immense advantages of wooden rail-ways in the Durham and

Northumberland coal fields caused them to be imitated in the neighborhood of Whitehaven, in Cumberland, where they were employed to a considerable extent, till superseded by the use of cast iron rail-ways.—The *Surry rail-road* commences on the south bank of the Thames, near Wandsworth, in Surry, and proceeds in a south-easterly direction, about nine and a half miles to Croydon, and thence, in a more southerly direction, eight and a half miles to Merstham. The acts for this rail-road were obtained in 1800 and 1804. It is a double rail-road, with tram-rails. The inclination is no where greater than 1 in 120, or one inch in ten feet.—The coal-works near Leeds and Wakefield are connected with the neighboring canals by numerous rail-ways; and the town of Leeds is supplied with coal from the Middleton coal-works, by a rail-road in which the wagons are moved by steam carriages.—The *Dewsbury and Birstal rail-way*. The object of this rail-way is to convey coals from the coal-works in Birstal parish to the vessels in the Calder and Hebble navigation. Its extent is about three miles. It was finished in 1805.—The Ashby-de-la-Zouch canal, which was opened in 1805, is terminated by a rail-way of three and three eighths miles in length, extending to the Ticknall lime-works in Derbyshire; another rail-way, of five miles, to Measham collieries; and one of six and a half miles to the Cloudshill lime-works.—The Derby canal has several rail-ways that branch from it, namely, to Horseley collieries, to Smithy houses, near Derby, four miles, and to Smalley mills, one and a half mile.—Rail-ways also branch from the Cromford and Erewash canals; and the Charnwood Forest canal is connected with the river Soar navigation by a rail-way two and a half miles long, with a rise of 185 feet, called the *Charnwood Forest rail-way*.—The *Chapel Milton and Loads Knowl rail-way* branches from the Peak Forest canal at Chapel Milton, in Derbyshire, to Loads Knowl lime-quarries in the Peak, a length of about six miles, with an inclined plane 515 yards long, and 204 feet fall.—The *Lancaster Canal rail-way* extends from Clayton Green, across the valley of the Ribble, to the top of its opposite bank, three and one fourth miles. A communication between the parts of the canal is effected by means of this rail-way, which has an inclined plane on each side of the valley; and the fall is 222 feet.—From the river Wye, near Mitchell Dean, a rail-way is laid through the forest of Dean to Lydney on the Severn, with a branch by Colford to Monmouth; and, in the same neighborhood, another rail-way extends from the Severn, five miles, to the collieries in the forest.—The Shropshire canal having to pass through a district where the changes of level were abrupt and considerable, inclined planes were adopted for conveying the boats to different levels. The first inclined plane is 350 yards in length, and 207 feet in perpendicular height, with a strong double rail-road upon it, to admit boats loaded with five tons and their carriages. The second plane is 600 yards in length, and 126 feet in height; and the third is 320 yards in length, with 120 feet fall.—In Cornwall, a rail-road, five miles in length, has been constructed from the harbor of Portreth to the mines near Redruth.—The *Stockton and Darlington rail-way* extends from Stockton by Darlington to the collieries on the south-west side of the county of Durham. It proceeds from Stockton in a westerly direction, and about three and a half miles from thence, a branch to the south, two miles in length, leads off to Yarm. The main line passes close to Darlington; and, about four miles beyond Darlington, a branch to the south, nearly two miles in length, leads to Pierce bridge. About five miles farther on the line, the Black Boy branch leads off in a north-easterly direction, to the Black Boy and Coundon collieries. The extent of this branch is upwards of five miles. The Hagger Leases branch, finished in October, 1830, extends to the Butterknowl and Copley collieries. This branch opens a communication with the lead-mine district, terminating at the road to Walsingham, Middleton, &c. The main line continues past Evenwood, to near the Norwood collieries, and returns in a north-easterly direction to the Etherly and Witton park collieries. The total extent of the main line is about thirty-two miles. It is a single rail-way, formed principally with edge rails of malleable iron. Several of the curves on this road are of too small a diameter, which occasions a great increase of the expense of transportation. At the western extremity of the line, a deep ravine occurs at the river Gaundless, on the summits of the hills on each side of which, permanent steam-engines are fixed, for the purpose of conveying goods across the two ridges. The main line of the rail-way was finished in 1825.—The *Clarence rail-road* is twenty miles long, and is parallel to the Stockton and Darlington rail-road. It is (1832) nearly finished, and is the best constructed rail-road in England.—The *Darlington and Croft rail-road* extends from Darlington to Croft. It was opened at Darlington, Oct. 27, 1829.—The *Stratford on Avon and Moreton in Marsh rail-road* was finished in November, 1826. The distance from Stratford to Moreton is sixteen miles.—The *Tees and Weardale rail-way* commences about four miles below Stockton, at the mouth of the Tees, and runs inland about twenty-six miles to Willington, in the vale of the Wear, between Durham and Wolsingham. About thirteen miles from its commencement, this rail-way enters the limestone district, and, about a mile farther, the coal district, which continues to the vicinity of Wolsingham, near which place, and in the upper parts of Weardale, is the lead country. The prominent object of this road is to connect the extensive coalfield, which lies in the south-western part of the county of Durham, with the river Tees in deep water.—The *Hereford tram road* was finished in the latter part of 1830. It extends from Hereford to Monmouth Gap.—The *Kingswinford rail-way* extends from Kingswinford to the Staffordshire and Worcestershire canal. It commences at the colliery of the earl of Dudley, by an inclined plane, 1000 yards in length, having an inclination of two and three tenths feet in a chain, and the carriages with coal are delivered down the plane in three and a half minutes, bringing up, at the same time, an equal number of empty carriages. The rail-road then proceeds from the foot of the inclined plane for one and seven eighths miles, at an inclination of sixteen feet per mile; and, on this part of the rail-road, the locomotive travels and delivers the wagons at the head of another inclined plane, 500 yards in length, having an inclination of two and eighty-five hundredths feet, in a chain. The wagons are passed down this plane in a similar manner to the first, in one and three fourths minute. At the foot of the second inclined plane, there is a basin 750 yards long, communicating with the Staffordshire and Worcestershire canal, to which the rail-road is continued on both sides, affording the means of loading sixty boats at a time. Over the middle of the basin is a bridge of eleven arches, on which the road from Wordsley to New Inn passes. The length of the rail-road is three and one eighth miles. It was finished in June, 1829.—The *Newcastle and Carlisle rail-road* was commenced in the latter part of 1830. It passes over a stone viaduct, seventy-five feet above the bed of the Eden, and will form a communication from sea to sea. The length of the projected route is sixty-one miles. There are to be seven branches from the main road. There will be no inclined planes, or stationary engines. The whole transportation is to be effected by horses.—The *Pentewan rail-road*, in Cornwall, passes through St. Austle's Moor, chiefly on an inclined plane. Four wagons loaded with fifteen tons of China clay, are sometimes linked together, and are then set in motion by two men, who gently impel them forward. As they advance, their speed gradually increases, until they proceed with the velocity of a mail-coach. They continue to proceed thus upwards of two miles. Having arrived at level ground, their speed gradually diminishes, until they at length stop, when the conductor attaches his horse to the foremost carriage, and they are thus drawn to Pentewan wharf; and the clay is shipped for Liverpool, Scotland, &c.—The *Canterbury rail-road* extends to Whitstable. It was five years in progress, and was finished in May, 1830. It is seven miles in length. The first four miles incline one part in ninety. The remaining distance of three miles is level; and here the wagons are attached to the locomotive engine. A tunnel has been cut through Brethren hills, 822 yards in length, at an expense of £13,000. Coal will experience a reduction of six shillings a chaldron for carriage. Passengers are conveyed over it for nine pence a head, in twenty minutes.—A new canal and rail-way between the Cann slate-works, and the new quay at Catwater Plymouth, was opened on Jan. 20, 1830. —The *Cromford and Park Forest rail-way* is altogether in Derbyshire, and goes over the Peak; it is thirty-two and three fourths miles in length, and was completed in July, 1831, six years from the time of its commencement, at an expense of £140,000. Of the whole length, only eleven and three fourths miles are a double line of rail-way. The remaining twenty-one miles are a single line, but so constructed that an additional track can be laid, at the expense of £20,000. The rails are of the edge kind, and are of cast iron, in lengths of four feet each, weighing eighty-four pounds. There are nine inclined planes, of which five overcome an ascent of 1000 feet from Cromford, and four, a descent of 800 feet, to Whaley bridge. At the inclined planes, the steam engines (eighteen in number) are in pairs.

of which seven are of twenty horse power each, and two pairs, of ten horse-power each. The longest plane is 850 yards. The greatest rise on the planes is at the rate of four and a half inches to the yard; the least is two and a half inches to the yard. The velocity, in ascending the plane, is four miles per hour. There are on this road much deep cutting, several tunnels (one 590 yards long), and several expensive embankments. The cost of transporting coal and lime is one and a half pence per ton per mile; for merchandise, the cost is three pence per ton per mile. Horse power is used on the levels, and it is not intended to carry passengers. It is supposed that this rail-way will not, for some years, be productive property, because it is on no great thoroughfare, and its route is over the highest hill in England, where there is little or no population, and the lead mines, for the conveyance of whose produce this work was principally constructed, are now almost deserted; but when united with the Liverpool and Manchester rail-way, it will become very valuable. This union will be effected in a few years by the Manchester and Sheffield rail-way. As soon as the junction of the Manchester rail-way is accomplished, there will be a complete rail-road communication from Liverpool to the valley of the Derwent, when this work will become a thoroughfare for the traffic between Liverpool and Manchester in the west, and Derby and Nottingham in the east.—The *Manchester and Sheffield rail-way*. In Aug., 1830, a meeting of persons interested in this enterprise was held in Liverpool, and a prospectus of the proposed work was read. It was resolved to form a company with a capital of £600,000, for the purpose of constructing the rail-road. It is to extend from Manchester to Sheffield; it will also connect the Liverpool and Manchester rail-road and the Cromford and Peake forest rail-way. The western termination of the latter rail-way at Whaley bridge is twenty miles distant from Manchester.—The *Leeds and Selby rail-road* was originally intended to connect Leeds with Hull; but, in 1829, it was determined to carry the road no further than from Leeds to Selby. The estimated expense of a double rail-way between these two last towns is £173,000. The operations upon this rail-road are now in active progress. It is to be connected with the Liverpool and Manchester rail-road, by the Leeds and Manchester rail-way.—The *Liverpool and Manchester rail-road*. The commencement of the rail-road at Liverpool is in the company's yard in Wapping. Here the lower entrance of the great tunnel is accessible through an open cutting, 22 feet deep and 46 feet wide, being a space sufficient for four lines of rail-way, with pillars between the lines, to support the flooring, &c. of the warehouses of the company, which are thrown across this excavation, and under which the wagons pass to be loaded or discharged through hatchways communicating with the stores above; wagons loaded with coal or lime pass under the warehouses to the open wharves at the Wapping end of the station. Proceeding along the tunnel, the line of rail-way curves to the south-east, till it reaches the bottom of the inclined plane, which is a perfectly straight line, 1980 yards in length, with a uniform rise of three fourths of an inch to a yard. The rail-way from Wapping to the commencement of the inclined plane is level; the whole rise, therefore, from Wapping to the tunnel mouth at Edgehill, is 123 feet. The tunnel is 22 feet wide and 16 feet high, the sides being perpendicular to the height of 5 feet, surmounted by a semicircular arch; the total length is 2250 yards. The height, from the roof of the tunnel upwards to the surface of the ground, varies from 5 to 70 feet. The whole length of this vast cavern is lighted with gas, and the sides and roof are white-washed to add to the effect of the illumination. At the eastern end of the tunnel, the rail-road emerges into a spacious area forty feet below the surface of the ground, cut out of the solid rock. From this area there returns a small tunnel, 290 yards in length, 15 feet wide and 12 feet high, parallel with the large one, but inclining upwards in the opposite direction, and terminating in the company's premises, in Crown street, at the eastern boundary of Liverpool; this is the principal station for the rail-way coaches, and the depot for coals for the supply of the higher districts of the town. In September, 1831, the company resolved to construct a new tunnel in order to be able to dispense with the omnibuses, which are employed to convey passengers from the town to the station on the rail-road from which the carriages for passengers start. The new tunnel is to be 1¼ mile in length, 25 feet high, 22 feet wide, and to have an inclination of 1 foot in 106. The roof is to be coated with Roman cement. The time which will be employed in conveying passengers through this tunnel will be three minutes. The expense is estimated at less than £100,000. Proceeding eastward from the tunnels, the road passes through a Moorish archway, which connects the two engine-houses, and forms the grand entrance to the Liverpool stations. The traveller is now upon the open road to Manchester; the line of the rail-way is perfectly level, and slightly curved. Crossing Wavertree-lane, the rail-way descends for five and a half miles, at the rate of four feet per mile. The road, a little beyond Wavertree-lane, is carried through a deep marl cutting, under several massive stone arch-ways thrown across the excavation to form the requisite communications between the opposite sides of the rail-road. Beyond the marl cutting is the great rock excavation through Olive mount, about half a mile to the north of the village of Wavertree. Here the traveller passes through a deep and narrow ravine, seventy feet below the surface of the ground, over which are thrown several bridges; the road winds gently to the south-east. Emerging from the Olive mount cutting, he approaches the Roby embankment, which stretches across the valley for about two miles, varying in height from 15 to 45 feet, and in breadth, at the base, from 60 to 135 feet. The rail-road next crosses the Huyton turnpike, and proceeds, in a slightly curved direction, to the bottom of the inclined plane at Whiston, between seven and eight miles from the company's station in Liverpool. This plane rises three eighths of an inch in a yard. It is a mile and a half long, in a straight line; the inclination is hardly perceptible, except by the decrease in the speed of the carriages. At the top of the Whiston plane, the road for nearly two miles is exactly level. About half a mile from the top of the inclined plane, the turnpike road from Liverpool to Manchester crosses the line of the rail-road in an acute angle of thirty-four degrees, by a stone bridge built on the diagonal principle, each stone being cut to a particular angle, to fit into a particular place. The span of the arch measured at the face is fifty-four feet, while the width of the rail-way underneath, measured from wall to wall, is only thirty feet—each face of the arch extending diagonally forty-five feet beyond the square. Passing over the summit level at Rainhill, the traveller arrives at the Sutton inclined plane, which descends in the opposite direction, and is similar, in extent and inclination, to the Whiston plane, the top level being eighty-two feet above the base of each plane. Parr Moss is the next object of attention. This moss is about twenty feet deep; the materials forming the rail-road, as they were deposited, sank to the bottom, and now form an embankment in reality twenty-five feet high, though only four or five feet above the surface of the moss. Over Sankey valley and canal, the rail-way is carried along a magnificent viaduct of nine arches, each fifty feet span, built principally of brick, with stone facings; the height from the top of the parapets to the water in the canal being seventy feet, and the width of the rail-way between the parapets, twenty-five feet. The approach to this structure is along a stupendous embankment, formed principally of clay. A few miles beyond Newton is the great Kenyon excavation, from which about 800,000 cubic yards of clay and sand were dug. Near the end of this cutting, the Kenyon and Leigh junction rail-way joins the Liverpool and Manchester rail-road by two branches pointing to the two towns respectively. The former rail-road joins the Bolton and Leigh rail-road, and thus forms the connecting link between Bolton, Liverpool and Manchester.—From the Kenyon excavation, the Liverpool and Manchester rail-road passes over the Broseley embankment, Bury lane, and the small river Glazebrook, to Chat Moss. This moss was so fluid that a rod of iron would sink into it by its own gravity. It comprises an area of about twelve square miles, varying in depth from ten to thirty-five feet. Beyond Chat Moss, the road traverses the Barton enbankment, crossing the low lands for about a mile between the moss and the Worsely canal, over which it is carried by a neat stone bridge. The immediate approach to Manchester is through a portion of Salford. Over the river Irwell, the rail-way is carried by a handsome stone bridge, consisting of two arches, each fifty-eight feet span, and then over a series of arches to the company's station in Water street and Liverpool road in Manchester. This rail-road consists of two tracks of rails, and is thirty-two miles in length. The whole number of bridges is twenty-five, and the number of large culverts, thirty-six. The rails are edge rails. It was constructed in four years, and opened Sept. 15, 1830. This road is constructed on the most approved principles. On the clay and stone, on which the road is formed, a layer two feet thick, of broken rock and sand, is deposited, one foot below the sleepers, and one foot distributed between them. The sleepers, or blocks on which the rails of the road rest, are composed of hard free-stone, from Peel, in Lancashire, on the excavated part of the road (about eighteen out of the thirty-two miles); while, on the raised embankments and the mosses, the rails are supported by sleepers of oak or larch. The stone blocks are about two feet over, and about a foot and a half thick; for the reception of the iron chairs, two holes are drilled in each block, and filled up with hard oak pins; the chairs are then fastened on by two large spikes driven through them into the oak; which process is found to be so effectual, that it is almost impossible to separate a chair from a sleeper when thus fastened. Before the construction of the rail-road, the number of passengers in the coaches between Liverpool and Manchester did not exceed 800 daily. In the latter part of 1831, 2500 passengers and 400 tons of goods were conveyed over the rail-way between these two towns, in one day. Immense quantities of live stock are now transported on this rail-way. In 1831, the gross receipts from January 1, to June 30, amounted to £65,693; the expenses were £35,379. A locomotive has passed, it is said, from one town to the other in thirty-three minutes. The Liverpool and Manchester rail-road is to be connected with the Cromford and Peake forest rail-way, by the Manchester and Sheffield rail-way.—The *Bolton and Leigh rail-way*, and the *Kenyon and Leigh junction rail-way*, connect Bolton with the Liverpool and Manchester rail-road.—The *Wigan and Newton rail-road*. A company was formed, in 1830, to construct a rail-road from Wigan, to join the Liverpool and Manchester rail-road near Newton. The length is six miles and three fourths. The expense is estimated at £40,000.—The *Liverpool and Leeds rail-way*. Measures are now (1832) in progress for the purpose of constructing a rail-road between these two towns, and application is to be made to parliament during the present year for the necessary authority. Meanwhile an important feature in the project of the road has already received the approbation of parliament. During the last session, a bill passed authorizing the converting of the Manchester, Bolton and Bury canal into a rail-road. The canal is eleven miles in length, and runs through a populous, wealthy and manufacturing district, which forms a part of the country through which the Liverpool and Leeds rail-way is expected to run. The majority of the shareholders in this canal have acquiesced in the new arrangement.—The *Leeds and Manchester rail-road* is to communicate with the Liverpool and Manchester rail-road, and to pass thence, on the east side of Manchester, near to Oldham, and through the valley of Todmorden, by Sowerby bridge, near Halifax, and thence along the vale of the Calder by Brighouse, Dewsbury and Wakefield, to Leeds. By this route, locomotives can travel the whole distance between Manchester and Leeds, with the aid of a tunnel of 6 or 700 yards in length, near Rothwell. Communications may easily be made, by branches from the trunk rail-way, to Halifax and to Huddersfield. The estimated expenses of the whole distance between Manchester and Leeds, by the valley of Todmorden, is from £700,000 to £800,000, and, when complated by the branches, the expense of which is not taken into this estimate, a rail-way communication will be established from Manchester to the important towns of Middleton, Rochdale, Todmorden, Halifax, Huddersfield, Dewsbury, Wakefield and Leeds. By the aid of the Liverpool and Manchester rail-road in the west, and the Leeds and Selby rail-road to the east, a direct rail-way communication will also be formed between the Ouse and the Mersey. It will also communicate with the proposed Bradford rail-way to Leeds. The distance by this line between Leeds and Manchester will be about fifty-eight miles, and the journey will be performed in about two hours and a half, at the present rate of travelling on the Liverpool and Manchester rail-road.—The *Southampton and London rail-way* will connect Southampton and London.—A rail-road has been projected between Liverpool and Birmingham, the length of which is estimated at eighty-six miles; and it is proposed to continue it to London. A company has been formed for the purpose of constructing rail-roads for locomotives from London to the principal towns in Kent. Rail-ways have also been projected between London and Edinburgh; between Bath and Bristol; from Wolverhampton through Dudley to Birmingham; from York to Croft bridge, a distance of forty-five miles; from Tunbridge Wells to Snodland; from St. Helen's to Runcorn, with branches, &c. &c. A route for a rail-road has been surveyed from Stamford to the canal at Oakham. The line is to proceed through the vale of Hambleton, by Exton, Empingham and Tinwell. The hill at the last named village is to be pierced by a tunnel one mile and one fourth in length.

Scotland. In Scotland, rail-roads are much employed for short distances, at some of the principal coal-works, &c. The *Troon rail-road* extends from Kilmarnock to the harbor of Troon, in Ayrshire, a distance of ten miles. It was constructed at the expense of the duke of Portland, the proprietor of the coal-fields in that vicinity. It is a tram rail-road. It is very extensively used for the transportation of coal and lime. The general inclination of the rail-way is 1 in 660. Various species of wagons are used on it; even common carts are allowed to go on it if the wheels are cylindrical, and no greater load on one pair than twenty-eight cwt.—The *Alloa colliery rail-way* is about two and a half miles in length, with cast iron rails.—Various other rail-ways are in use in the mining districts of Scotland, chiefly of the edge kind. Those which have been lately constructed are, in general, of malleable iron. The rail-way of the Carron company is understood to have reduced their average monthly expenditure for carriage from £1200 to £300.—There is a rail-way on the property of the earl of Glasgow, commencing at the Hurlet coal and lime works, and extending to the Paisley canal, a distance of two and a half miles. The rails are of malleable iron, each nine feet in length, are supported at every three feet, and are two and a quarter inches deep, and three fourths of an inch thick.—The *Dalkeith and Edinburgh rail-road* is about twenty miles long, and will soon be completed.—The *Garnkirk and Glasgow rail-way* was opened in 1831. On this rail-road, the first experiment of steam locomotives in Scotland was made.—Rail-roads have been projected between Leith and Edinburgh, and between Edinburgh and Glasgow.

Wales. In Wales, the rail-roads communicating between the iron works and coal mines, and branching from the canals and rivers to the principal mining districts, are very numerous. The main rail-roads are joined by many smaller private ones, which give a great facility for traffic in a country where the common roads are bad. In 1791, there was scarcely a rail-way in South Wales; in 1811, the complete rail-roads connected with canals, collieries, &c., in Monmouthshire, Glamorganshire, and Caermarthenshire, amounted to nearly 150 miles in length (exclusive of underground ones), of which one company in Merthyr Tidvil possessed about thirty miles.—The *Cardiff and Merthyr rail-way*, or *tram-road*, was constructed in 1794, under the first act of parliament ever granted for this species of road. It is about 27 miles long.—The Aberdare canal, which branches from the Cardiff canal, is connected with the Neath canal by a rail-way, the communication being completed by an inclined plane, up which the wagons are drawn by a high pressure engine.—The *Sirhoway rail-road*, or *tram-road*, commences at the Monmouth canal, at Pillgwelly, crosses the Ebwy by a bridge of sixteen arches, and terminates at Trevill lime works, a length of about twenty-eight miles. From the Sirhoway rail-way there are several branches. The act for building it was obtained in 1802.—The *Brinore rail-way* also leads from it to Haye, on the Wye.—The *Blaen-Avon rail-way* also leads to the Monmouthshire canal. Its length is five and a half miles; it rises 610 feet in that distance, to the Blaen-Avon furnace.—The *Caermarthenshire rail-road* commences from the harbor of Llanelly, and extends fifteen miles, through a productive coal country, to the lime works at Llandebie; and from the eastern side branch rail-ways to the extensive coal works of general Waide. The charter was obtained in 1802.—The *Oyster-mouth rail-way* proceeds from Swansea, seven miles along the coast, to the village of Oyster-mouth; it is intended chiefly for the transportation of limestone. Several other rail-ways communicate with the Swansea canal from the coal works in its neighborhood.—The *Abergavenny rail-way* proceeds from the Brecknock canal, and passes by a bridge over the Uske to Abergavenny. From the same canal there is a rail-way branch to Uske and to Haye, and various others to coal and iron works; and at the iron works near Pontypool there are some lofty inclined planes.—The *Ruabon brook rail-way* commences on the north bank of the river Dee, and passes through numerous collieries, to Ruabon brook, a distance of three miles.—The *Penrhyn rail-way* extends from the Penrhyn slate quarries, in Caernarvonshire, to Port Penrhyn, a distance of six and a quarter miles, and is divided into five stages; it has three eighths of an inch fall in one yard, and has three inclined planes. It was begun in October, 1800, and finished in July, 1801. It has oval-formed edge rails of cast iron.—The *Pentre colliery and Swansea canal rail-way* is an improved rail-way and self-acting inclined plane of nearly half a mile in length. It is in the immediate vicinity of Swansea, and connects the Pentre colliery with the Swansea canal. The embankment is in some places more than twenty feet high. Ten tons of coal are passed at a time over the space of nearly half a mile in two minutes, being at the rate of fifteen miles per hour. One hundred and twenty tons of coal could be sent down in an hour. This rail-way was opened in July, 1830.—The *Caernavon and Nantlle rail-road* is designed for the transportation of slate. It was finished in October, 1828.

France. The first rail-road in France was a small one at Mount Cenis, constructed, in 1783, by Wilkinson, an Englishman, for the use of the founderies of Creusot. The *St. Etienne and Andrezieux rail-road* extends from St. Etienne, which is the seat of extensive iron manufactures, and in the neighborhood of rich coal-mines, to Andrezieux, on the Loire. It was commenced in 1825, and is the first rail-road, of any extent, that has been constructed in France. The road consists of but one track of rails, and, with its branches, is about twelve miles and three fifths in length. The rails are of the edge kind, formed of cast iron. The curves of the road are from 250 feet to 333⅓ feet radius. The cost was 74,095 francs a kilometre, which is equal to 3280 feet 11 inches. The transportation upon it is effected by means of horses. The yearly transportation amounts to from 60,000 to 80,000 tons. This road is connected with the rail-road from Roanne to Andrezieux.—The *Roanne and Andrezieux rail-road.* This enterprise completes the grand system of communication between the south and the north, from the basin of the Rhone to those of the Loire and of the Seine, and will remedy the great difficulties in the navigation of the Loire above Roanne. It was undertaken principally with the view of facilitating the transportation of coal from St. Etienne to the basins of the Loire and Seine, and will form a continuation of the rail-road from the Loire to St. Etienne. At Roanne, the Loire becomes navigable both in the ascent and descent. This rail-road has only one track; the rails are of wrought iron; the curves in the road have 666⅔ feet radius. It was estimated that the annual transportation upon the road would be from 160,000 to 180,000 tons. The cost was 50,746 francs (about $9500) per kilometre.—The *Lyons and St. Etienne rail-road* extends from Lyons to St. Etienne, following the river Gier and the Rhone, thus connecting two of the principal manufacturing cities of France. It is a double track rail-road, and is thirty-four miles and four fifths in length. The rails are of wrought iron, supported on stone; the curves of this road have at least 1666 feet radius. The route is divided into three divisions. The first division extends from Lyons to Givors. The principal works on this division are the bridge over the Saone, the deep cut at Pierre Bénite, the passage of Vernaison, and the tunnel of the Mulatiere. The second division extends from Givors to Rive de Gier. The tunnel of Rive de Gier is 3020 feet in length. The third division extends from Rive de Gier to St. Etienne. It is connected by a branch road with the rail-road from St. Etienne to the Loire. The tunnels upon this rail-road are fourteen in number, and their aggregate length 13,123 feet. The shortest of these tunnels will contain two tracks, and will be sixteen feet four and a half inches wide; the other will be only ten feet in width, and will contain only one track. The cost of this road was 9,939,000 francs (about $1,813,870). It was commenced in 1826, and finished in 1831. The annual transportation is estimated at 317,000 tons. Locomotive engines, manufactured by Seguin, are used upon this road, which are said to be superior in power to the similar English engines, and are much lighter and cheaper. The locomotives of Seguin cost 10,000 francs (about $1875), produce 400 kilogrammes of steam per hour (about 882 pounds), and weigh only 6000 kilogrammes (about 13,230 pounds).—The *Paris and Versailles rail-road* was commenced in 1827. It extends from the road near the *Hopital des Invalides* at Paris to Versailles. It is intended only to convey travellers to the royal palace. The carriages contain six persons, drawn by one horse. Upon an average, 600 to 800 persons travel daily from Paris to Versailles.—The *Epinac rail-road.* A company has been formed for the purpose of constructing a rail-road from Epinac to the canal of Bourgogne. Epinac is situated in the department of Saone and Loire, near Autun. The rail-road will be about seventeen miles and three fifths in length, and will establish a communication between the canals of the Centre and of Bourgogne. By this means, the collieries of Epinac will be able to supply with coals Franche Comté, Bourgogne, Champagne, and, generally, all the country traversed by a part of the Saone, the canal Monsieur, the canal of Bourgogne and the Yonne; and, when the canal of Bourgogne is finished, they will be able to supply Paris with coals, at a price much less than that of any now consumed there.—A rail-road is about to be constructed from Paris to Rouen, with branches to Havre and Dieppe, connecting the metropolis with a large manufacturing town, and with the seaports on the Channel. The cost of a rail-road, with a double track, from Paris to Havre, is estimated at 118,000 francs (about $22,120) per kilometre of 3280 feet, and the annual transportation between these two cities is about 300,000 tons. It has also been determined to construct a rail-road from Paris to Pontoise. Measures were adopted to effect this object in the latter part of the year 1831. Rail-roads have been projected from Paris to Lyons, from Strasburg to Paris, and from Calais to Paris.

Germany. The *Danube and Moldau rail-road*. The Danube and the Moldau have been connected by a rail-road extending from Munthausen, in Austria, to Budweis, in Bohemia. It is seventy-five miles in length, and has a single track. It is constructed of iron tracks, laid upon rails of wood, and cost $600,000. This work was commenced in 1826. It produces to the proprietors an annual income of ten per cent. A single horse draws upon it a load of ten tons.—It has been determined by the governments of Hanover and Brunswick to construct a rail-road uniting the cities of Harbourg and Luneburg with Celle and Brunswick.—The chevalier Baader has proposed to unite the Danube and the Rhine by a rail-road. The project of uniting these two rivers by a canal was first proposed by Charlemagne; and the project has lately been revived in Germany. The distance by a canal would be seventy-eight geometrical leagues, and the cost would be 8,000,000 florins. Baader proposes to substitute a rail-road which would be only thirty-two geometrical leagues in length, by means of which boats might be transported from Donauwert to Markbreit on the Mein in thirty hours. The route proposed commences at Donauwert, and proceeds along the left bank of the Wornitz till it arrives opposite Hasbourg, situated on the right bank; thence passing near Hopping, Schrattenhoff, Wornitz, Oettingen, Bellerhaus and Diebach, it terminates at Markbreit on the Mein.

Russia. In Russia, rail-ways have long been in use.

Spain. A rail-road from Jarez to Puerto de Santa Maria and San Lucar has been projected. The estimated cost is £40,000; and it is proposed to raise that sum in 4000 shares, at ten pounds each. It is under the direct patronage of the king and queen, the former having subscribed for sixty shares, and the latter for forty shares. This list also contains the names of four grandees and two ministers. At present, all the sherry wine which is exported is carried, at a great expense, from Jarez to the place of shipment; it is to be hereafter transported on the rail-road. If the undertaking is successful, it will probably lead to the introduction of rail-roads in other districts where they are equally wanted. Corn, in the interior of Spain, is almost valueless, from the cost and delay in transporting it to the coast.

United States.—*The Quincy rail-road*. This is the first work of the kind which has been attempted in the U. States. It was constructed solely for the transportation of granite, and commences at the granite quarry in Quincy, and, descending gradually, terminates at the Neponset river, which flows into Boston harbor. It is a single track rail-road, three miles in length. The ascent of the hill on which the quarry is situated, is overcome by a self-acting inclined plane. The sleepers are of granite, seven and a half feet long, and laid eight feet apart. The distance between the rails is five feet. The rails are of pine, twelve inches deep, with a covering of oak, on which are laid the thin plates of wrought iron upon which the cars traverse. At the crossings of the high roads, the iron bars are fastened down to granite rails in a durable manner. The least radius of curvature is 300 feet. When it was first constructed, the usual load for one horse was ten tons, moving at the rate of three miles an hour. It has now (1832) been in operation five years.

The Boston and Lowell rail-road. This rail-road is to commence at Boston, near the entrance to the Warren bridge, on the westerly side of the bridge. The adjoining land and flats, forming an area of about twenty acres, have been purchased by the company which has undertaken the construction of this work; and the flats are to be filled up. The land thus acquired will be sufficient to accommodate the different terminations of the rail-road, and the necessary depots. The rail-road is to cross Charles river by a wooden viaduct, and, passing through Woburn, terminate at the basin of the canal in Lowell; from thence there are to be branches along the several canals to the factories. The inclination of the road will in no case be greater than ten feet in a mile, and, in general, will not exceed five feet per mile. It is to be composed at present of a single track, having the requi site number of turn-outs; but provision has been made for the construction of another track, if it should be required. It is to be constructed in the most substantial manner, of stone and iron. The Boston and Lowell rail-road company was incorporated in June, 1830.

The Boston and Worcester rail-road. A company for the purpose of constructing a rail-road from Boston to Worcester was incorporated in June, 1831, by the legislature of Massachusetts. Surveys for the route have been made, and it is presumed that the work will be soon commenced. The length of the route is about forty-three miles. It is also proposed to continue this road to Connecticut river, and to construct a branch road to Millbury. —The *Boston and Providence rail-road.* A company was incorporated by the same legislature in June, 1831, with a capital stock of 1,000,000 dollars, for the purpose of constructing a rail-road from Boston to the boundary line of Massachusetts, in the direction of Providence. Surveys of the route have been made.—The *Boston and Taunton rail-road.* A company was incorporated in June, 1831, by the legislature of Massachusetts, with a capital of 1,000,000 dollars, for the purpose of constructing a rail-road from Boston to Taunton, and from Taunton to any part of Taunton river at which the waters are navigable by vessels of heavy burden, with liberty to extend it from Taunton to the line of Massachusetts in the direction of Providence. It is proposed to unite this company to the Boston and Providence rail-road company.

Rail-roads have been projected from Boston or Lowell to Brattleborough; from West Stockbridge to the boundary line of the state of New York, to meet a rail-road from Albany; from Boston to Salem, to be continued to the northern line of the state; from Troy, in New York, at the head of navigation on the Hudson river, to Bennington, a distance of thirty miles, with a branch to the town of Adams (this road is proposed to be continued to Brattleborough; the distance from Bennington to Brattleborough is forty-two miles); and from Boston to Ogdensburg, in New York.

The *Hudson and Mohawk rail-road.* The company by which this rail-road was constructed was incorporated by the legislature of New York in 1826, with a capital of $300,000, with liberty to increase it to $500,000. This increase has recently taken place. On August 12, 1830, the ground was broken at Schenectady for the purpose of commencing the construction of a double track road. With two slight exceptions, the road between the Albany and Schenectady planes is perfectly straight. The line passes principally over high table land, where there is little or no population. It is about sixteen miles in length. The rail-road commences at the termination of the city line on the Hudson river, and about thirteen acres of land are owned by the company in the vicinity, part of which will include the wharfs which are now constructing for the accommodation of the transportation on the road. The road crosses South Pearl street, under a handsome stone arch, and passes thence up the hill with an inclination of one foot in eighteen, until it reaches the summit, 185 feet above the Hudson. At this place a building is erected which contains a double stationary engine of twelve horse power, for hauling up the cars. The road then proceeds north-westerly up to the head of Lydius street, to strike which it takes a curve of 4000 feet radius, and passes over two heavy and high embankments, and through some deep cuttings near the alms-house. From the head of Lydius street (where the travel at present terminates), it proceeds in the same direction, crossing the heavy embankment called the Buel viaduct, ascending a plane for about three miles, of one foot in 225. Afterwards ascending by two other planes at different points, and crossing several waterways, upon embankments, it proceeds to the summit at Schenectady. There are in all six principal embankments. About four miles from Schenectady there is a curve in the road of 23,000 feet radius. Just at the summit is a smaller curve, with a radius of 1100 feet. There is also another plane of three miles, where the ascent is one foot in 270; and another of one and a half mile, where it is one in 450 feet. The descent from the Schenectady summit to the level of the Hudson is 335 feet. At this point a double stationary engine is placed. A plane overcomes a height of 115 feet, with an inclination like that near the Hudson, and, running down a heavy embankment, strikes the canal about half a mile from the principal street in Schenectady; but the track is prolonged upon a level to within sixty rods of the same. The soil through which the road passes is sandy. Some considerable elevations are cut through, and several ravines crossed. The slopes left by the cutting, or formed by the embankments, are to be covered with sods. No settling of the road has taken place, except to a very slight degree in some of the embankments, which may be easily rectified. The road was constructed in the following manner:—After the grading is finished, under each line of the rails, square holes are dug at the distance of three feet from centre to centre, capable of containing nine cubic feet of broken stone. In clay, the holes are connected by a neck. In these holes the broken stone is placed and rammed down, so as to form a solid mass. The stone, which is principally grauwacke, is broken into pieces that will pass through a ring of two inches diameter. On this foundation, stone blocks, dressed upon the upper side only, are placed. The next step is to drill the holes in the face of the stone. In these drillings, small plugs of locust wood, about four inches long and about an inch in diameter, are loosely placed. Into these plugs are driven the iron spikes which pass through and hold down the cast iron chairs. The chairs are double or single. The double chairs are of sufficient length to pass across, beneath the rail, and are used in the proportion of one to three single chairs, which are on each side of the rail, but do not pass under it. The rails are of wood, from twenty-one to twenty-four feet long and six inches square, hewed out of Norway and white pine. These rails are placed in the iron chairs, and are wedged with wooden wedges, on the outer side, into a perfectly true line. On these lie the iron rails, which are made of wrought iron. They are two inches and a half wide at the bottom, and rounded off to 1 7-8ths on the top; their thickness is 9-16ths of an inch. These bars are tongued and grooved, and are secured to the wooden rail by iron spikes driven through oval openings. The expansion and contraction of the metal are provided for in these openings, and also by the tongues and grooves. Where two bars join, an iron plate is placed underneath; and it is remarked that, although additional strength is gained by this, yet the iron rails wear faster at these places than at any others. At the distance of twenty-one feet, tie pieces, as a further security, are laid down to bind the rails to each other, and to keep them in their proper position. Broken stone is also laid down between the rails, and at the sides of the road. Upon the embankments, the rails are laid without stone blocks, which are proposed to be put down after the earth has settled. The other track, which is on the south side of the one now in use, is in a state of active preparation. Both locomotive engines and horses are used upon this road. A locomotive has travelled upon it with a load of eight tons, at the rate of thirty miles per hour. The number of passengers in October, 1831, averaged 387 per day.

The *Schenectady and Saratoga rail-road.* This rail-road is to extend from Schenectady to Ballston, and thence to Saratoga. The route is admirably adapted for rail-road purposes. There will be no inclination greater than one foot in 400. The execution of this work is undertaken by an incorporated company, with a capital stock of $180,000. The total income is estimated at $72,000, and the net revenue at $51,000. This rail-road was commenced in the summer of 1831, and it is expected to be finished in the course of the year 1832.

The *Ithaca and Susquehanna rail-road.* The legislature of New York have authorized the construction of a rail-road from Ithaca, near the south end of Cayuga lake, to the Susquehanna river, at Owego. The distance is about twenty-eight miles.

The *Ithaca and Catskill rail-road* is to extend from Ithaca to Catskill, on the Hudson. The distance is about 167 miles. —The *Catskill and Canajoharie rail-road.* This rail-road is to extend from Catskill, on the Hudson, to Canajoharie, on the Mohawk, a distance of seventy-five miles. It was commenced in 1831, in the vicinity of Catskill, and fifteen miles were put under contract.

The *Harlem rail-road* is to extend from Harlem river to the city of New York, a distance of about five miles. It is purposed that the contemplated rail-road from New York to Albany, running near the boundary line of the state of New York, shall commence at the northern termination of this rail-road.—Rail-roads have been projected, extending from Schenectady to Buffalo, passing through Utica and Salina; from some point opposite the city of New York, through the southern counties of the state, by the way of Owego, and through the valleys of the Susquehanna and Chemung rivers, to lake Erie, at some point between Cattaraugus creek and the Pennsylvania boundary line; from the city of New York to Albany, passing on the eastern side of the Hudson, as already mentioned, with branches to Litchfield in Connecticut, and to Berkshire county in Massachusetts; from Utica to the Pennsylvania boundary line; from Buffalo to the Pennsylvania line; from Rochester to the Alleghany river; from the Catskill and Canajoharie rail-road to the

Susquehanna river; from Buffalo to the Cayuga lake; from Utica to the Cayuga lake; from Utica to Oswego; from Geneva to Ithaca; from Cooperstown to Clairsville; from Rochester to Carthage; from Rochester to Danville; from Troy to Whitehall; from Jamaica to Brooklyn; from Whitehall to the Vermont line, &c. &c.

The *Camden and Amboy rail-road* commences at Camden, on the Delaware, opposite to Philadelphia, and passes through Burlington, Bordentown, Highstown, Spottswood, over South river, and terminates at Amboy. The whole distance from Camden to Amboy, in a direct line, is sixty miles; by the rail-road the distance is sixty-one miles and ten chains. The country through which it passes is very level, and, in one instance, for twenty miles, nature seems to have forestalled the engineer. As this road is designed for steam locomotives, it is to be constructed in the most improved and substantial manner. At present, however, wooden rails are laid over a great portion of the line, in order that the embankments may be consolidated, before laying the permanent track. Near Bordentown, the rails are of iron, upon the plan of the Liverpool and Manchester rail-road, with some variation. Between the chairs and the granite sleepers, a thin piece of the wood of the locust tree, rather larger than the chair, is inserted, which, it is thought, will neutralize the effect of the contact of iron and granite, which is said to be perceptible on the Liverpool and Manchester rail-road. About a mile of the rail-road has been laid with granite rails, on which thin plates of iron are to be riveted, to form tracks. It is intended ultimately to lay a double track of rails the whole distance. Between Bordentown and Amboy, there is a cut sixty feet deep at the deepest point, extending nearly two miles, with varying depth. The soil taken from the excavation has been, with great labor, placed on the top of the banks, there being no valleys near, to be filled up. The culverts and viaducts, in the vicinity of Bordentown, are constructed of stone. The embankments are to be sodded, which is necessary from the light nature of the soil. The binding gravel used upon this rail-road was formed by grinding the small and smooth stone found under the soil, in a steam mill constructed for this purpose. It is anticipated that this rail-road will be so far completed, by the close of the year 1832, as to admit of the passage of cars between Camden and Amboy. It is calculated that $500,000 per annum will be received for the conveyance of light freight and passengers. The expense of a single track, that is, two lines of rails, is estimated at $8000 per mile. The execution of this enterprise has been undertaken by the Camden and Amboy rail-road company, united, in pursuance of an act of the legislature of New Jersey, to the Delaware and Raritan canal company. The company having been incorporated for the purposes of transportation as well as for constructing the rail-road, preparations have been made for fulfilling that part of their obligations, by the purchase of the line of steam-boats on the Delaware and Raritan, &c. As the Delaware is frequently closed with ice during a part of the winter, and the trade of Philadelphia is, in consequence, directed to New York, it is supposed that vessels destined for Philadelphia may put into Raritan bay, which is open at all seasons, and that the cargoes may be thence conveyed at once upon the rail-road to the place of their destination. In order to secure this object, the company has purchased large lots on the Raritan and the Delaware, for the convenience of ships, steam-boats, &c., and it is believed that steam-boats can be so constructed as to cross the Delaware between Camden and Philadelphia, at all seasons of the year.

The *Patterson and Hudson river rail-road* is to extend from Patterson, on the Passaic, to Jersey city and the Hudson river, opposite New York, fourteen miles. It is proposed to cut a tunnel through Bergen ridge. The stock has been taken up, and preparations are making to begin the work early in the spring of 1832. After the expiration of fifty years, the state of New Jersey has a right to take the road at an appraised value.

The *Elizabethtown and Somerville rail-road* is to extend from Elizabethtown to Somerville. The route has been surveyed, but the work has not yet (1832) been commenced. It is undertaken by the Elizabethtown and Somerville rail-road company, incorporated by the legislature of New Jersey in 1830—31, with a capital stock of $200,000, with liberty to increase it to $400,000.

The *West Jersey rail-road* and transportation company was also incorporated at the same session, with a capital stock of $500,000, with liberty to increase it to $2,000,000. The object of the company is the construction of a rail-road from the Delaware river, in the county of Gloucester, or from some point on the Camden and Amboy rail-road, to some point on the same river, in the township of Penns Neck, in the county of Salem.—A charter was also granted to a company to construct a rail-road connecting the Morris canal with the Patterson and Hudson river rail-road.

The *Mauch Chunk rail-road* was the first rail-road constructed in Pennsylvania. It was commenced in January, 1827, and finished in the succeeding May. It extends from the coal-mines near Mauch Chunk, along the side of the mountain, down an inclined plane of various declivities to the Lehigh river. The elevation of the coal-mines above the Lehigh, at the point where the coal is delivered into the boats, is 936 feet. The road, within half a mile of the mine, rises 46 feet, when it reaches its extreme point of elevation, 982 feet above the water. At the bank of the river there is an abrupt termination of the mountain, upon which is constructed an inclined plane 700 feet long, with a declivity of 225 feet, below which there is still a farther descent of 25 feet down a chute, through which coal is conveyed into the boats. Its entire length, from the river to the mines, is nine miles, and its branches at the ends, and the sidelings, four and a half miles more. It consists of a single track. The least radius of curvature is 437 feet. The rail-road has a continued descent from the summit, so that the cars descend by their own gravity. The rails are of timber, covered with plates of iron, and resting upon cross sleepers, at the distance of four feet from each other. The coal is transported in cars, fourteen of which are connected together, each containing a ton and a half of coal. A single conductor rides on one of the cars, and regulates their movement. From 300 to 340 tons a day are regularly discharged into the river. The empty wagons are drawn back by mules, who ride down the rail-way in cars; and so strong is their preference of this mode of travelling down, that, in one instance, where they were sent up with the coal wagons without the mule cars, the workmen were not able to drive them down, but were actually obliged to drag up the cars for them to descend in. At first the wagons descended at the rate of fifteen or twenty miles an hour; but it was necessary to reduce the speed, as it injured the machines, and, by agitating the coal, involved the driver in a cloud of dust. The cost of this rail-road was $3050 per mile.

The *Mount Carbon rail-road* company was incorporated in the spring of 1829, and the rail-road was begun in the succeeding October. It commences at mount Carbon. At the termination, the road is elevated upon thirty-one piers of masonry erected upon the landings. The road passes thence through the gap of Sharp mountain, following the valley of the Schuylkill to Morrisville. It here leaves the Schuylkill at its junction with the Norwegian creek, stretching up the valley of the latter, and crossing it several times; hence it runs directly through Pottsville to the Forks, a distance of 6208 feet from the piers. The east branch is 14,200 feet in length. It passes through the Peach mountain tract, and terminates upon the Flowery Field tract, &c. The west branch commences at Marysville, and is 16,400 feet in length. This rail-road has a width of eighteen feet surface, occupied by a double track from the head of both branches to the commencement of the piers at mount Carbon, where a third track is added. Each track is four feet eight and a half inches wide. At every distance of eight feet, a drain eighteen inches in depth, and filled with broken stone, crosses to the side ditches, the stone forming a bed upon which the sleepers rest. On the sleepers, which are of oak, cradles or cheek-blocks of the same material are treenailed, in which the rails rest, and are wedged, being thereby elevated above the part of the sleeper that crosses the horse-path. In some places, however, the cheek-blocks and sleepers are in one solid piece. The rails are of oak, and, on the main line, are uniformly six inches by ten; but, on both branches, the rails of the ascending track are six inches by eight. On the heavy track, the rails are of the same dimensions as on the main line. The iron plates on which the wheels run, are two inches wide by three eighths in thickness, beveled on the edge, and having the nail-holes countersunk, the heads being trimmed off, to prevent jarring. The cost of this rail-road was $100,000.

The *Schuylkill valley rail-road* commences at Port Carbon, and terminates at Tuscarora, a distance of ten miles. There are fifteen lateral rail-roads intersecting it, the distances of which combined, amount to about thirteen miles. The main stem consists of a double track. The laterals have but a single track. The cost of the main stem was $5500 per mile; that of the laterals, $2600 per mile.

The *Schuylkill rail-road* is thirteen miles in length, consists of a double track, and cost $7000 per mile.

The *Mill creek rail-road* commences

at Port Carbon, and extends up Mill creek four miles. This road consists of a single track, and cost about $14,000. There are about three miles of lateral rail-roads intersecting the main stem, which cost about $2000 per mile.

The *West Branch rail-road* commences at Schuylkill Haven, and terminates at the foot of the Broad mountain. The length of the road, including the west branch, is fifteen miles. The main stem has a double track; the cost was upwards of $150,000. There are also about five miles of lateral road intersecting it, which consist of a single track; the average cost of the laterals was about $2000 per mile.

The *Pinegrove rail-road* extends from the mines to the Swatara feeder, a distance of five miles. This road cost about $30,000.

The *Little Schuylkill rail-road* commences at Port Clinton, and extends up the stream to the mines, at Tamaqua, a distance of about twenty-three miles. It was finished in the latter part of the year 1831.

The *Lackawaxen rail-road* commences at the termination of the Lackawaxen and Delaware and Hudson canal, and connects that canal with the coal bed in Carbondale. It is sixteen miles in length, and overcomes an elevation of 800 feet. This rise is surmounted by five inclined planes, in three and a half miles, each from 2000 to 3000 feet in length. The cars are drawn up by stationary engines. The rail-road consists of a single track of wooden rails, capped with iron. The cost was $6500 per mile.

The *Alleghany portage rail-road* is intended to connect the eastern and western sections of the Pennsylvania canal, and complete the direct line of communication between Philadelphia and Pittsburg. The route adopted commences at Frankstown, and, leading upwards along the valley of Blair's gap run, crosses the Alleghany mountains at Blair's gap summit, and descends in the valleys of Laurel run and the Little Conemaugh to Johnstown, a distance of thirty-eight and a half miles, or in a right line of nearly thirty and three fourths miles. The summit is 1397 feet above Frankstown, and 1137 feet above Johnstown, and is to be surmounted by means of eleven inclined planes, six of which are to be on the eastern, and five on the western side of the mountains. The planes are to be graduated at an angle not exceeding three degrees, except in two instances, where it is optional to adopt an inclination of nearly five degrees, or to lengthen the route by about three fourths of a mile. The sections between the inclined planes are to be graduated at an inclination not exceeding thirty feet per mile, and the curvatures are generally limited to a radius of 603 feet, except in four instances; the most abrupt curvature has a radius of 410 feet. It is proposed to cross the summit of the mountain by a deep cut, about 1500 feet long, the greatest depth of which will be eighteen feet. A tunnel of 1000 feet, at one of the bends of the Conemaugh, is included in the route, by which the distance will be shortened rather more than a mile. The Conemaugh will be crossed twice by bridges. The cost of the entire route was estimated at $612,000. This rail-road is to be constructed by the state of Pennsylvania. In March, 1831, an appropriation of $700,000 was made for the construction of this rail-road, and the extension of the Juniata division of the Pennsylvania canal from Huntingdon to Hollidaysburg, about two and a half miles beyond Frankstown; in consequence of which, the length of the rail-road will not exceed thirty-six miles. No portion of the rails have as yet (1832) been laid.

The *Central rail-road* extends from Pottsville down the valley of the Shamokin creek to Sunbury, which is near the junction of the Susquehanna with its western branch. A branch rail-road is to be constructed to Danville. It is proposed to call it the *Girard rail-road.*

The *West Chester rail-road* leads from the borough of West Chester, which is twenty-three miles west of Philadelphia, to Paoli, where it joins the Philadelphia and Columbia rail-road. It is now (1832) nearly completed.

The *Philadelphia, Germantown and Norristown rail-road* will be about nineteen miles in length, extending from Philadelphia to Norristown, on the Schuylkill. The section of the rail-road between Philadelphia and Germantown is now (1832) in active progress, but no portion of the rails have as yet been laid. A rail-road is projected from Norristown to the Lehigh river, at Allentown.

The *Philadelphia and Delaware county rail-road* is to extend from Philadelphia south-westerly, along the western margin of the river Delaware. The route has been surveyed, but as yet, active operations upon it have not been commenced. Leave has recently been obtained from the legislature of Delaware, to continue it through that state to the Maryland line. This work will form part of the direct line to

Baltimore, and will afford to vessels which may be detained by ice at the different piers in the river, an opportunity of discharging and transporting their cargoes to Philadelphia.

The *Philadelphia and Columbia rail-road* is intended to connect the Delaware navigation at Philadelphia with that of the Susquehanna at Columbia, passing through the counties of Delaware, Chester and Lancaster. The principal summit on this rail-road is the Mine ridge, which is 599 feet above the Delaware at Philadelphia. There are two inclined planes, one at Columbia, which is 660 yards in length and ninety feet in height, and the other, which is 180 feet in height, at the Schuylkill, near Peter's island, in the vicinity of Philadelphia. At the foot of the latter inclined plane, the Schuylkill is to be crossed by a bridge 900 feet in length, which is now constructing. From the Mine ridge gap summit, at Henderson, westward, to the head of the inclined plane at Columbia, the distance is twenty-nine miles, and the ascent and descent is 848½ feet. From the same summit, eastward, to the head of the inclined plane at the Schuylkill, the distance is fifty miles, and the ascent and descent 940 feet. The whole length is 82¾ miles. It terminates in Philadelphia at the intersection of Vine and Broad streets. The sum of $600,000 was appropriated by the legislature of Pennsylvania, in March, 1831, towards the completion of this work. A large part of the road has been put under contract, but only a small portion of rails have as yet been laid down. It is proposed to continue the rail-road westward, across the Susquehanna by the Columbia bridge, to the borough of York, a distance of fourteen miles. At the session of the legislature of Pennsylvania in 1829–30, the following companies were incorporated:—The *Philipsburg and Juniata rail-road* company, for the purpose of constructing a rail-road from the Pennsylvania canal, near the mouth of the Little Juniata, to the coal mines in the vicinity of Philipsburg.—The *Tuscarora and Cold run tunnel and rail-road* company, for the purpose of constructing a rail-road and tunnel through the Sharp mountain from Skell's mill to Cold run.—The *Middle Port and Pine creek rail-road* company, for the purpose of constructing a rail-road from the Schuylkill valley rail-road, near Middle Port, to the Schuylkill canal, near the mouth of Pine creek.—The *Syker's valley rail-road* company, for the purpose of constructing a rail-road from Millesburg to Short mountain.—The *Beaver meadow rail-road* company, for the purpose of constructing a rail-road from Beaver meadow coal mines to the river Lehigh, at any place above Mauch Chunk. A company was also incorporated for the purpose of constructing a canal or rail-road from the Delaware and Hudson canal, near the mouth of the Wallenponpack, to the neighborhood of Cobb's gap, and thence to the coal beds on the western side of the Moosic or Lackawannock mountain. At the session of the same legislature in 1830—1, twelve rail-road companies were incorporated. Numerous other rail-roads have been projected in this state. It has been stated that the whole number of rail-roads in Pennsylvania, of greater or less extent, is sixty-seven.

The *Newcastle and Frenchtown rail-road* extends from Newcastle, on the Delaware, to the Elk river, near Frenchtown. It consists of a single track, with the requisite number of turn-outs, and is nearly sixteen and a half miles in length, and is only 853 yards longer than a perfectly straight line drawn between its *termini*. It consists of six curves and six straight lines. The curves vary in length from 1939 feet to 8296 feet. The *radii* of the three smallest curves is 10,560 feet; the radius of the largest curve is 20,000 feet. The aggregate length of the curves is five miles and sixteen one-hundredths; that of the straight lines is eleven miles and three tenths. The longest straight line is nearly six miles in extent. The graduation of the road varies from a perfect level to ascents and descents of ten feet six inches to sixteen feet four inches, to the mile; at one place, for about 4000 feet, the slope is at the rate of twenty-nine feet to the mile. The whole amount of excavation is about 500,000 cubic yards of earth, exclusive of the side drains. The amount of embankment is about 420,000 cubic yards. At two points, the excavation was attended with great difficulty and expense, especially at the western termination of the road, where the cutting was thirty-seven feet deep through a solid mass of tough red and black clay for a considerable distance. There are six principal embankments, varying in length from 1200 to 3000 feet each, and in height from fifteen to twenty-five feet each. The road crosses four viaducts (varying in dimensions from twelve feet by ten to five feet by six), and twenty-nine culverts. The viaducts and culverts are constructed of substantial stone masonry. The width of the road bed is twenty-six feet, exclusive of the side drains. The road is constructed in the following manner: Stone blocks, containing two cubic feet of stone each, and weighing about 360 pounds, are laid three feet apart, from centre to centre, and bedded in holes two feet deep and two feet square, upon pure sand or gravel well rammed, where white oak sleepers are used upon embankments, &c. They are laid at the same distance apart, on sills of hemlock four inches thick by eight inches wide, placed longitudinally, which are, in like manner, bedded in trenches filled with sand or gravel well rammed. Upon these are laid and secured the rails of Georgia pitch pine, six inches square, on which are fastened the iron bars, two and one fourth inches wide by five eighths of an inch thick, with iron plates beneath them, at the points of their junction. The inner edge of the rail is *chamfered* so as to bring the bearing of the iron bar nearly on the centre. The total cost of the rail-road, including the land for its location, wharfs, land and depots at both ends, locomotives, &c., is estimated at $400,000.

The *Wilmington and Downingtown rail-road.* A company was incorporated by the legislature of Delaware, in 1831, with a capital of $100,000, with liberty to increase it to $150,000, for the purpose of constructing a rail-road from Wilmington to the boundary line of the state, in the direction of Downingtown in Pennsylvania.

The *Baltimore and Susquehanna rail-road* was commenced in 1830. It is to extend from Baltimore to York, where it may be connected with the Philadelphia and Columbia rail-road, or it may be continued to York Haven, on the Susquehanna. The distance from Baltimore to York, in consequence of the uneven surface of the country, will not be less than seventy-six miles. The portion of the road which lies in Maryland, is in active progress. A division of it, seven miles in length, commencing at Baltimore, has already been completed, at an expense of $13,350 per mile. The next division, terminating at the Reistertown road, which is eight miles in length, is now under contract. When completed, it is supposed that the average cost of the road will be reduced to $11,000 per mile. The act of Maryland, incorporating the Baltimore and Susquehanna rail-road company for the purpose of constructing this rail-road, has not as yet been concurred in by Pennsylvania, as regards the portion of the road proposed to be located within the state of Pennsylvania; and the rail-road, at present, is to terminate at the Maryland and Pennsylvania boundary line. The company are authorized, by the legislature of Maryland, to construct a lateral rail-road commencing at some point upon the main stem of their rail-road, within ten miles from Baltimore, and extending through Westminster to the head waters of the Monocacy river.

The *Baltimore and Ohio rail-road* is intended to unite the city of Baltimore, a central point on the Atlantic coast, with the Ohio river—the great navigable highway of the Western States. The ceremony of laying the first stone was performed on the 4th of July, 1828; but it was not until the autumn of that year that active operations towards the construction of the work were begun. It commences at the head of the basin in Baltimore. The rail-road in the city is a single track, the rails of which are placed at equal distances between the curb-stones of the side-walks, and consists of blocks of stone, sunk as low as the level of the street, with grooves in them for the flanges of the wheels, to run with an iron bar for the track, secured in the mode adopted on other parts of the road. The whole street is paved, and is slightly convex. On this part of the road, horse power alone is to be used. It is proposed to construct branch rail-ways to various sections of the city. It is also to be continued to the city block, a distance of two miles, thus traversing the whole water front of the city. From the basin the rail-road passes to the depot in Pratt street. The line between Pratt street and the Potomac is sixty-seven and five eighths miles in length. It has been definitively located, and is divided into six divisions. The city division commences at Pratt street, and ends at the "first stone," or south-west boundary of the city: the first division commences at the termination of the city division, and ends at a point on the northern edge of the Frederic turnpike, at Ellicott's mills. These two divisions embrace a distance of about thirteen miles and twenty-two poles. On these divisions two sets of tracks are laid, one consisting of bars of iron, laid on wooden sills, and the other of iron, on stone sills. There are several magnificent viaducts, constructed of substantial stone masonry on this portion of the road. The Carrollton viaduct over Gwyn's falls is constructed of granite. The whole exterior is hewn. It consists of two arches, and is 312 feet in length. Its height, from the foundation to the top of the parapet, sixty-three feet nine inches; from the surface of the water to the top of the parapet, fifty-one feet and nine inches. The width of the rail-way travelling path is twenty-six feet six inches; the chord of the arch, springing from the abutments, eighty feet three inches. It is a structure of great solidity and beauty. The bridge across the Patapsco is also of stone, and consists of two arches, of fifty-five feet span each, and two of twenty feet span each. It is 375 feet in length. There are also several extensive embankments and deep cuts. The bridges, culverts, &c., contain, altogether, 47,300 perches of masonry. The cost for graduation and masonry was $605,912. The second division commences at Ellicott's mills, on the right bank of the Patapsco river, following the windings of the river through a rugged granite district, and ends at the Forks. Almost the whole distance, it is a shelf cut out of the bank of the river, secured against the abrasion of the stream by substantial stone embankments, or an exterior coating of stone. There are very few thorough cuts. The length of this division is 11 miles 219 poles. It consists of a double set of tracks, laid on granite sills, except on high embankments, where wood was preferred. At the Forks of the Patapsco, the road reaches an elevation of nearly 300 feet above tide. The cost for graduation and masonry was $118,327. The third division begins at the Forks of the Patapsco, crossing the west branch, and following up its course on the left bank, and terminates on the summit of Parr's Spring ridge. The length of this division is 17 miles and 104 poles. On this division there are four bridges, and a stone viaduct over the Frederick turnpike road. The chords of the arches of the bridges are from twelve to twenty-five feet; that of the viaduct is twenty feet. The ascent and descent of Parr's ridge is overcome by four inclined planes. Two of these planes are on this division; the first, 2150 feet in length, with a rise of 80½ feet; the second, 3000 feet in length, with a rise of 99¾ feet. This plane terminates at the top of the ridge, where there is a level 600 feet in length, affording space for the location of the necessary stationary engines. A single track of rails has been laid on this division, and materials are in preparation for the second track. Of the track which has been finished, a large portion is laid with wooden sills. The estimated cost for graduation and masonry is $132,196. The fourth division begins on the summit of Parr's ridge, the descent of which is overcome by two inclined planes. The first is 3200 feet in length, with a descent of 159 feet; and the second is 1900 feet in length, with a descent of 81½ feet. The road then pursues the ravine of Bush creek, on the south side of the stream, for about four and a half miles, when it crosses to the north side, over a stone bridge of one arch of twenty-five feet chord. Thence it traverses the north side of the stream to its confluence with the Monocacy, over which river it passes upon a bridge 350 feet in length, and 23 feet 8 inches in breadth, and terminates on the west bank. The abutments and piers of this bridge are of stone, and the superstructure of wood. It has three arches, of 110 feet span each, the chords of which are elevated above the low-water line of the Monocacy twenty-six feet. It is so constructed, that its floor forms a roof impervious to water, and protects the timbers beneath from the weather. The piers are ten feet thick at the top, and they, as well as the abutments, were raised from a rock foundation, at a slope of one inch base to one foot altitude. There are, besides, in this division, six small stone bridges, and one viaduct. The length of the division is 14 miles 163 poles. A single track, laid with wood, has been finished upon this division. The whole estimated cost for graduation and masonry is $136,237. From the circumstance that stone suitable for sills has not been found on the upper part of the third, nor upon the fourth and fifth divisions, including the lateral road to Frederick, it became necessary to lay the first track through these divisions with wood instead of stone. The fifth division commences at the western termination of the Monocacy bridge, and, after pursuing the descending valley of that river for about a mile and a half, gently diverges from it, and terminates at the Point of Rocks on the Potomac river. The length of this division is eleven miles and nine poles. There is no curvature in this division of less radius than 1146 feet. On this division, there are only three bridges, of one arch each, and one viaduct over the rail-road, for the accommodation of the Georgetown and Frederick turnpike road, of stone abutments, and superstructure of wood, of twenty-four feet span. It was expected that a single track on this division would be finished by the beginning of the year 1832. It is anticipated that the second track throughout the whole line of the rail-road will be completed in the course of the year 1832. The estimated cost for the graduation and masonry of the fifth division was $78,682. The lateral road to Frederick commences near the western end of the bridge over the Monocacy, and, pursuing the western margin of the river upward for about one mile, diverges from it to the north-west, and, after crossing the land between that river and Carroll's creek, terminates at the depot at Frederick. This depot is so situated as to secure from it an easy communication by lateral rail-ways to all parts of that city. The point of termination of this lateral rail-road is sixty miles ten poles from Pratt street. It was commenced in July, 1831. Upon it is one long and deep excavation through solid lime-stone rock, besides several other rocky cuts of less magnitude. The length of this branch is 3 miles 130 poles. There are no bridges upon it. It consists of a single track, laid with wood. The estimated cost for graduation and masonry was $30,258. A portion of the rail-road is constructed in the following manner: After the grading is finished, small trenches, two feet wide, were formed for the tracks, which are filled with rubble stone, in which are laid the stone rails, which are in no instance less than eight inches thick, in a continuous line. For the length of two feet at the joinings of the rails, the trenches were cut one foot wider than at any other parts. The upper and inner surfaces of these rails are dressed perfectly even, as well as the ends where they join. Bars of wrought iron, two and one fourth inches in width and five eighths of an inch in thickness, are then laid on these rails, on a line with the inner surfaces, and are secured with iron rivets, entering about three and a half inches in holes fitted to receive them, and filled with plugs of locust wood, and at a distance of about eighteen inches. On some sections of the rail-road, wooden string-pieces and sleepers are used. The rails rest in notches cut in the sleepers for that purpose, and are secured in their position by wooden wedges or keys, about twelve inches in length, driven horizontally at the bottom of the inner side of each notch. The sleepers are from seven to eight feet in length, and are laid transversely, at the distance of four feet from centre to centre. To accommodate the horse-path, each sleeper is hewn down in the middle. Under the notches of the sleepers, the earth is excavated so as to form a hole twelve inches in depth, filled with broken stone, upon which the sleeper rests. Where rock, or other hard substance, intervenes, the depth is less. The iron bars are secured upon the wooden string-pieces, by nails or spikes. Immediately under the joinings of the iron bars, thin plates of iron are let into the wood, and the ends of each two adjoining rails are fastened to this plate. The breadth of the track between the iron bars is four feet nine and one fourth inches. The estimated cost of graduating the entire line of the main road between Baltimore and the Point of Rocks, including the lateral road to Frederick, and of laying a double set of tracks upon the main stem, and a single set on the lateral road, is $1,906,853, or $27,128 per mile. About one third of this line will be laid with stone rails, and the remaining two thirds with wood. There are only two curves on the whole line of a less radius than 395 feet, which is fixed as the limit of curvature. The breadth of the track is four feet nine and one fourth inches between the rails. From Jan. 1, to Sept. 30, 1831, the number of passengers on that portion of the road between Baltimore and Ellicott's mills was 81,905; and, within the same period, 5931 tons have been transported upon it, yielding an income of $31,405, and involving an expenditure of $10,994 Transportation is effected by horses and by steam locomotives. The progress of the road beyond the Point of Rocks has been interrupted by a lawsuit between the Baltimore and Ohio rail-road company, by which this enterprise has been undertaken, and the Chesapeake canal company. This controversy has lately been decided in favor of the canal company. Measures are now in progress for the extension of the rail-road to the mouth of the Shenandoah. This will lay open to the Baltimore market one of the richest and most productive sections of Virginia. A farther extension of thirty miles will carry the road to Williamsport; and another prolongation of seventy-five miles will carry it to Cumberland, and to a region abounding in rich bituminous coal. From this point, the distance will be about 140 miles to Pittsburg, if that should be chosen as the point of termination. This would make the whole length of the road 325 miles. From the extremely unfavorable surface over which the road necessarily passes for the first eight miles, in order to reach the valley of the Patapsco, the expenses across that district were very heavy; but, in adopting this route, a line of road was secured, which, by some extensive embankments and deep cuttings near Baltimore, can be located with but a single summit, for a distance of 180 miles, and with only two summits requiring stationary power along the entire line to the Ohio river. The approach to the first of these summits at Parr Spring ridge is by an acclivity so gradual as not to exceed an average of about eighteen feet to the mile; and, as the amount of tonnage passing westward will not be as great as that passing eastward, this line will be more advantageous than if it were perfectly level. From the western side of this ridge, to the coal-mines near Cumberland, the route is adapted, along the whole distance, to steam locomotives. From the eastern base of the Alleghany mountain, a series of inclined planes will be required to overcome a summit of about 1200 feet; from thence it has been ascertained that the road may be conducted to the Ohio river upon a line so nearly level as to be traversed without difficulty by locomotive steam power.—The Baltimore and Ohio rail-road company was incorporated by the legislature of Maryland, Virginia and Pennsylvania. The state of Maryland and the city of Baltimore have subscribed for $500,000 each of the stock of this company.

The *Baltimore and Washington rail-road* is a branch of the Baltimore and Ohio rail-road, and its execution has been undertaken by the Baltimore and Ohio rail-road company. The legislature of Maryland has passed an act authorizing the Baltimore and Washington turnpike-road company to subscribe $100,000 to the stock of this rail-road, reserving to the state the right to subscribe to the amount of five eighths of the cost of the road, from its intersection with the Baltimore and Ohio rail-road to the line of the district of Columbia, amounting to about a moiety of the whole expenditure. The necessary surveys are now making. The length from the point of its intersection with the main stem, near Elkridge landing, to Washington, will be about thirty-three miles. The country admits of a graduation to inclination not greater than twenty feet to the mile. From the Patapsco to Washington, it is probable that the radius of curvature need not be less than from 1000 to 1500 feet; and it is believed there will be few places where it need be less than 3000 feet. There are few curvatures between Baltimore and Patapsco having a less radius than 1000 feet.

A rail-road has been projected from Baltimore to Annapolis.

The *Manchester rail-road* is in Chesterfield county, Virginia. It extends from Manchester to the coal mines. It consists of a single track, and is thirteen miles in length.

The *Petersburg and Roanoke rail-road* was undertaken to counteract the injurious effect which the Dismal Swamp canal has upon the trade of Petersburg. Formerly, a considerable portion of the Roanoke trade was conveyed overland to Petersburg; but this canal has diverted it to Norfolk, though by a long and circuitous route. A route for this rail-road has been surveyed from Petersburg to the Roanoke, a distance of sixty miles; and a company has been incorporated, with a capital stock of $400,000 for the purpose of constructing it.

Rail-roads have been also projected from Richmond to Lynchburg; from Lynchburg to New river; from Suffolk, in Nansemond county, to the Roanoke river, opposite to the town of Weldon, in North Carolina, &c.

The *Fayetteville rail-road* company was incorporated by the legislature of North Carolina, in 1830, with a capital stock of $20,000, for the purpose of constructing a rail-road from Fayetteville to the Cape Fear river, at Campbeltown.

A company has been lately incorporated for the construction of a rail-road from the cape Fear to the Yadkin. Rail-roads have also been proposed from the Yadkin to the Catawba; and from Wilmington to the iron-mining districts, near Statesville, passing through Fayetteville and Salisbury.

The *Charleston and Hamburg rail-road* extends from Charleston to Hamburg, on the Savannah river, opposite Augusta. It consists of two divisions: the eastern division, from Charleston to Edisto river, is sixty-two and a half miles in length; the western division, from Edisto to Hamburg, is seventy miles in length. The road is constructed of wood, with tracks of iron, and is designed for steam locomotives. This enterprise was undertaken by the South Carolina canal and rail-road company, which has, however, received pecuniary assistance from the state of South Carolina. A second rail-road, of about the same length, is also embraced within the objects of the company. It is to extend from Charleston to Columbia.

Companies have been incorporated by the legislature of Alabama, to construct a rail-road from Montgomery to Chattahoochie, opposite Columbus, in Georgia, and from Selma, on the Alabama, through

Elyta and Montevallo, to Decatur, on the Tennessee. A rail-road has been projected from Augusta to Heshman's lake, a distance of fifty miles. Its object is to avoid the delay experienced in getting supplies for the interior from the uncertain navigation of the Savannah river. A rail-road has also been proposed between Augusta and Columbus, in Georgia, on the Chatahoochie.

The *Lexington and Ohio rail-road* was commenced in 1831. It is to extend from Lexington to Frankfort, and thence to the Ohio river just below the falls, near Shippingport, which is distant two miles from Louisville. It will be about eighty miles in length. The Louisville canal, round the falls of the Ohio, terminates also at Shippingport. The Lexington and Ohio rail-road company, by which this enterprise is undertaken, was incorporated by the legislature of Kentucky, in 1830, with a capital stock of $1,000,000. In Ohio, a rail-road has been projected from Wheeling to lake Erie, and a grant has been made by the legislature of that state for the purpose. It is also proposed to construct a rail-road from Mad river to lake Erie, and from Steubenville, on the Ohio, to the Ohio state canal, &c. &c.

The *Illinois and Michigan rail-road* is to commence at Chicago, on lake Michigan, and continue in a south-westerly direction, eleven miles and a half to the summit level; in this distance the ascent is only twenty-five feet. After passing the summit level, it is to cross, and continue along the river Des Plaines, to the foot of the Illinois rapids, the distance of eighty-five miles, with a descent of exactly two feet per mile; thus giving, in the distance of ninety-six and a half miles, only 195 feet rise and fall.

The *Detroit and Pontiac rail-road.* A company has been formed, and a survey made, for a rail-road from Detroit to Pontiac, a distance of twenty-five miles.

The *Tuscumbia rail-road* was constructed in order to avoid the Muscle shoals, and extends from Tuscumbia to Decatur. It was commenced in 1831. It consists of a single track of rails, and cost about $3500 per mile. It is also proposed to extend the Lynchburg and New river rail-road to Knoxville. Rail-roads have also been projected from Nashville to Franklin, and from Columbia to the Tennessee.

The *lake Pontchartrain rail-road* is about four miles and a half in length, and extends from lake Pontchartrain to New Orleans. It consists of a single track. It is perfectly straight, and nearly level, the ascent and descent being only sixteen inches. The rails weigh thirty-five pounds per yard. The cost was $15,000 per mile. The company, by which it was constructed, was incorporated in January, 1830, with exclusive privileges, for twenty-five years. The road was finished and opened on April 16, 1831. An act of congress was obtained by the company in the session preceding, establishing a port of entry on lake Pontchartrain; and the company are now constructing an artificial harbor and breakwater in the lake, at the termination of the rail-road. This port is called *Port Pontchartrain.*

The *West Feliciana rail-road.* A company was incorporated by the legislature of Louisiana for the purpose of constructing a rail-road from the river Mississippi, near St. Francisville, to the boundary line of Louisiana and Mississippi, in the direction of Woodville, in Mississippi.—For more particular information on the subjects of this article, see the works of Mr. Tredgold and Mr. Wood, and the reports of the various engineers on the different rail-roads. Those relating to the Baltimore and Ohio rail-road give the results of very numerous experiments and estimates, which throw great light upon the subject of the construction of rail-roads in the U. States.

RAIN. This meteorological phenomenon depends upon the formation and dissolution of clouds. The humidity suspended in the atmosphere is derived from the evaporation of water, partly from land, but chiefly from the vast expanse of the ocean. A surface of lake, of pasture, cornfield or forest supports a continual evaporation, augmented only by the dryness of the air, and the rapidity of its successive contacts. Even ploughed land will supply nearly as much moisture to the atmosphere as a sheet of water of equal dimensions. If the whole of the waters, which fall from the heavens, were to return again, the evaporation from the ground might be sufficient alone to maintain the perpetual circulation. But more than one third of all the rains and melted snows are carried by the rivers to the ocean, which must hence restore this continued waste. The air, in exhaling its watery store, is rendered quite damp; but it may afterwards become dry, on being transported to a warmer situation. Such is the case with the sea-breeze, particularly in summer. It arrives on the shore cold and moist; but as it advances into the interior of the continent, it grows milder and drier. The moisture deposited by a body of air in minute globules, which remain suspended or subside slowly in the atmosphere, constitutes a *cloud.* When it comes near us, whether it hovers on the tops of the hills or spreads over the valleys, it receives the name of a *fog.* The production of rain has, from the earliest times, engaged the attention of philosophers; but it was reserved for doctor James Hutton, of Edinburgh, to afford the true solution of the problem. His theory of rain was made known in 1787; since which period it has been greatly neglected by writers upon meteorology, until within a very few years. We shall now give an outline of doctor Hutton's views. Air, in cooling, it is known, has the property of depositing the moisture it contains. But how, it may be asked, is it cooled in the free atmosphere, unless by the contact or commixture of a colder portion of the same fluid? Now the portion of air which is chilled must, in an equal degree, warm the other. If, in consequence of this mutual change of condition, the former be disposed to resign its moisture, the latter is more inclined to retain it; and, consequently, if such opposite effects were balanced, there could on the whole be no precipitation of moisture. The separation of moisture, on the mixing of two masses of damp air at different temperatures, would therefore prove, that the dissolving power of air suffers more diminution from losing part of the combined heat, than it acquires augmentation from gaining an equal measure of it; and, consequently, this power must, under equal accessions of heat, increase more slowly at first than it does afterwards, thus advancing always with accumulated celerity. The quantity of moisture which air can hold, thus increases in a much faster ratio than its temperature. This great principle in the economy of nature was traced by doctor Hutton from indirect experience. It is the simplest of the accelerating kind, and perfectly agrees with the law of solution, which the hygrometer has established. Suppose equal bulks of air in a state of saturation, and at the different temperatures of 15 and 45 centesimal degrees, were intermixed; the compound arising from such union will evidently have the mean temperature of 30°. But since, at these temperatures, the one portion held 200 parts of humidity, and the other 800, the aggregate must contain 1000 parts, or either half of it, 500; at the mean or resulting temperature, however, this portion is only capable of suspending 400 parts of humidity, and, consequently, the difference, or 100 parts, amounting to the two hundredth part of the whole weight of air, must be precipitated from the compound mass. In this example, it has been assumed that the portions of differently heated air were saturated with moisture before mixing; but it is only required that they should approximate to this condition. The effect, however, of simple commixture would, in most cases, be very small. To explain the actual phenomena, we must have recourse to the mutual operation of a chill and of a warm current driving swiftly in opposite directions, and continually mixing and shifting their surfaces. By this rapidity, a larger volume of the fluid is brought into contact in a given time. Suppose, for instance, the one current to have a temperature of 50°, and the other that of 70° Fahr.; the blending surfaces will therefore assume the mean temperature of 60°. Consequently the two streams throw together 200 and 334.2 parts of moisture, making 567.1 parts for the compound, which, at its actual temperature, can hold only 258.6 parts; the difference, or 8.6 parts, forms the measure of precipitation, corresponding to the 2325th of the whole weight of the commixed air. It would thus require a column of air 30 miles in length to furnish, over a given spot, and in the space of an hour, a deposit of moisture equal to the height of an inch. If the sum of the opposite velocities amounted to 60 miles an hour, and the intermingling influence extended but to a quarter of an inch at the grazing surfaces, there would still, on this supposition, be produced, in the same time, a fall of rain reaching to half an inch in altitude. These quantities come within the limits of probability, and agree sufficiently with experience and observation. But in the higher temperatures, though the difference of the heat between the opposite strata of air should remain the same, the measure of aqueous precipitation is greatly increased. Thus, while the mixture of equal masses of air, at the temperatures of 40° and 60°, is only 6.6, that from a like mixture of 80° and 100° amounts to 19. This result is entirely conformable to observation, for showers are most copious during hot weather and in the tropical climates. The quantity of rain precipitated from the atmosphere, thus depends upon a variety of circumstances,—on the previous dampness of the commixed portions of the fluid,—their difference of heat,—the elevation of their mean temperature,—and the extent of the combination which takes place. When the deposition is slow, the very minute aqueous globules remain suspended, and form clouds; but if it be rapid and copious, those particles conglomerate, and produce, according to the temperature of the medium through which they descend, rain, mist, snow, or hail. The foregoing theory tallies precisely with what we experience in the connexion of rain with the variable nature of the winds. Steady dry weather is always accompanied by a steady direction of the wind; whereas, in rainy weather, the winds are unsteady and variable. The heavy rains that fall in India always take place during the shifting of the monsoons; and while they last, the winds are always veering.—The annual quantity of rain is greatest at the equator, and gradually diminishes as we approach the pole. This will be evident from the following table, showing the annual depth of rain in different latitudes:

	Lat. N.	*Fall of Rain.*
Grenada, ...	12°	126 inches.
Cape François,	19° 46′	120 "
Calcutta, ...	22° 23′	81 "
Rome, ...	41° 54′	39 "
England, ...	50° to 55°	31 "
Petersburg, . .	59° 16′	16 "
Uleaborg, . . .	65° 1′	13½ "

On the contrary, the number of rainy days is smallest at the equator, and increases in proportion to the distance from it. From north latitude 12° to 43°, the mean number of rainy days is 78.

From 43° to 46° the mean number is 103
" 46° " 50° " " " " 134
" 50° " 60° " " " " 161

Hence it is obvious that the rain falls in very heavy showers in warm climates, and that it becomes more and more gentle as we advance towards the pole. Consequently, in hot climates, the air must be much less loaded with moisture, and the rate of evaporation much greater than in cold climates. For when rain falls very heavy, a great portion of it runs off by the surface, and flows into the sea. But this happens to a much less extent when the fall of rain is more gentle.

Rainbow. To what has been said on this subject in the article *Optics*, division *Natural Phenomena*, we will only add, that in a stormy sea, in which the water is frequently sent up into the air in large drops, the rays of the sun form in them inverted rainbows, of which from twenty to thirty are frequently visible at the same time. They usually have but two colors; yellow upon the side towards the sun, and pale green upon the other side. The appearance of two rainbows, intersected by each other, which sometimes takes place on the seacoast, when the rain-cloud is over the water, is perhaps the effect of the image of the sun reflected from the surface of the water. In the morning, we often see the colors of the rainbow in the dew-drops on the meadows, where the bow is hyperbolical or elliptical. Rainbows likewise have sometimes been observed in the night, which arise from the refraction and dispersion of the colored rays of the moon in the drops of rain; they are, however, very faint, and usually form only white and yellow bows. The bishop of Spalatro, Antony de Dominis, gave the first accurate explanation of the principal rainbow, in a treatise which appeared at Venice in the beginning of the seventeenth century; but we are indebted to Newton for the complete elucidation, on mathematical principles, of this bright appearance of the heavens (*Optica*, London, 1706, quarto). (See *Iris*.)

Raingauge, or Pluviometer; a machine for measuring the quantity of rain that falls. There are various kinds of raingauges: one of the best is a hollow cylinder, having within it a cork-ball attached to a wooden stem, which passes through a small opening at the top, on which is placed a large funnel. When this instrument is placed in the open air, in a free place, the rain that falls within the circumference of the funnel will run down into the cylinder, and cause the cork to float; and the quantity of water in the cylinder may be seen by the height to which the stem of the float is raised. The stem of the float is so graduated as to show, by its divisions, the number of perpendicular inches of water which fell on the surface of the earth since the last observation. It is hardly necessary to observe that, after every observation, the cylinder must be emptied. A very simple raingauge, and one which answers all practical purposes, consists of a copper funnel, the area of whose opening is exactly ten square inches. This funnel is fixed in a bottle, and the quantity of rain caught is ascertained by multiplying the weight in ounces by 173, which gives the depth in inches and parst of an inch. In fixing these gauges, care must be taken that the rain may have free access to them. Hence the tops of buildings are usually the best places. When quantities of rain, collected in them at different places, are compared, the instruments ought to be fixed at the same heights above the ground at both places, because, at different heights, the quantities are always different, even at the same place. (See *Rain*.)

Rajah; the hereditary princes of the Hindoos, who, before the subjugation of the country by the Moguls, governed the various countries of Hindoostan, as they still continue to do in some instances, though they are generally dependent on the Europeans. They belong to the caste of Cshatriyas, or Chehteree. (See *Caste*, and *Hindoos*.) In the East Indian islands, especially in the interior of them, where the arms of foreign conquerors have never penetrated, there are yet many independent rajahs.—*Rajah* is the prefix to many geographical names in the East Indies.

Rajasthan (or the central and western Rajpoot states) extends from 22° to 30° north latitude, and from 69° to 78° east longitude, comprising 350,000 square miles. It consists of seven states, belonging to the British dominions. This country was, comparatively, but little known to Europeans, until the publication of a valuable work on it by colonel Tod, who had been for a long time in authority there. The work is of much interest to the geographer, the historian, the lover of poetry, and the linguist, and brings to light curious traces of institutions similar to those of Europe. Were other remote countries of the East explored in the same spirit, many more such analogies would probably be found. See the *Annals and Antiquities of Rajasthan, by Lieut. Col. James Tod, late Political Agent to the Western Rajpoot States* (4to., London, 1829).

Rajpootana. (See *Rajasthan*.)

Rake; a term applied to the masts when they are out of a perpendicular situation; as, That ship's mainmast *rakes* aft.

Raking; the act of cannonading a ship on the stern, or head, so that the balls range the whole length of the decks, which is one of the most dangerous incidents that can happen in a naval action. This is frequently called *raking fore and aft*, and is similar to what is termed by engineers *enfilading*.

Raleigh, or Ralegh, sir Walter, a distinguished warrior, statesman, and writer, in the reigns of Elizabeth and James I, was the second son of a gentleman of ancient family in Devonshire. He was born in 1552, in that county, and was sent to Oriel college, Oxford, where his proficiency gave a high opinion of his capacity. His active disposition and martial ardor led him, at the age of seventeen, to join a body of gentlemen volunteers raised to assist the French Protestants. He subsequently accompanied the forces sent under general Norris to assist the Dutch, and afterwards accompanied his half-brother sir Humphrey Gilbert in a voyage to Newfoundland. On his return, he distinguished himself in the Irish rebellion, and was rewarded for his services by a considerable estate in Ireland. His favor at court was advanced by a well-known act of gallantry. The queen, in a walk among a crowd of courtiers, having come to a spot in which the path was obstructed by mire, Raleigh immediately took off his rich plush cloak, and spread it on the ground for a foot-cloth. In 1584, his active disposition was manifested in a scheme for the discovery and settlement of those parts of North America not already appropriated by Christian states. By his interest, he obtained a very extensive patent for this purpose; and, with the help of friends, two ships were fitted out. These vessels having carried home cargoes that sold well, a second expedition of seven vessels followed, under the command of sir Richard Grenville, Raleigh's kinsman. The latter enterprise terminated in the settlement of Virginia, so called in honor of queen Elizabeth, and is said to have first introduced tobacco and potatoes to Europe. In the mean time, he was honored with knighthood, and rewarded by several lucrative grants, including a large share of the forfeited Irish estates. He was one of the council to whom the consideration of the best means of opposing the Spanish armada was intrusted, and was among the number of volunteers who joined the English fleet with ships of their own. In 1589, he accompanied the expelled king of Portugal in his attempt to reinstate himself, for which service he received several additional marks of favor and emolument; for, although fond of glory, he was almost equally so of gain. On his return from Portugal, he visited Ireland, and contracted an intimacy with Spenser (q. v.), who celebrated sir Walter under the title of the Shepherd of the Ocean, and to his Faery Queen prefixed a letter to him explanatory of its plan and design. The latter, in return, introduced the poet to Elizabeth. In 1592, he commanded an expedition with a view of attacking Panama; but was recalled by the queen, and, soon after, incurred her displeasure by an amour with one of her maids of honor, the daughter of sir Nicholas Throckmorton. Although he made the best reparation in his power by marrying that lady, he was imprisoned for some months, and banished the queen's presence. To recover favor, he planned an expedition to Guiana, in which he embarked in February, 1595, and reached the Orinoco; but was obliged, by sickness and contrary winds, to return, after having done little more than take a formal possession of the country in the name of Elizabeth. In 1596, he had so far regained favor that he had a naval command under the earl of Essex, with whom a difference ensued, that laid the foundation of a lasting enmity between them. Sir Walter was subsequently fully restored to the good graces of Elizabeth, who nominated him to the government of Jersey. He witnessed the ruin of his antagonist, the earl of Essex, whose execution he urged, and personally viewed from a window in the armory. (See *Devereux*.) The speedy death of the queen, which this very catastrophe hastened, put a period to his prosperity. James I, whom, with some other courtiers, he sought to limit in his power of introducing the Scots into England, resented that attempt, and disliked him as the enemy of his friend the earl of Essex. Although received with external civility at court, he was deprived of his post of captain of the guards, and evidently discountenanced. This treatment preyed upon his high spirit; and, a conspiracy having been formed for the purpose of placing upon the throne the lady Arabella Stuart, sir Walter was accused of participating in it by lord Cobham, to whose idle proposals he had given ear, without approving them. By the base subservience of the jury, he was brought in guilty of high treason, even to the surprise of the attorney-general Coke himself, who declared that he had only charged him with misprision of treason. Raleigh was reprieved, and committed to the Tower, where his wife, at her earnest solicitation, was allowed to reside with him, and where his youngest son was born. Though his estates, in general, were preserved to him, the rapacity of the king's minion, the infamous Car, seized on his manor of Sherborne, upon a flaw found in his prior conveyance of it to his son. It was not until after twelve years' confinement that he obtained his liberation, during which interval he composed the greater part of his works, and especially his History of the World. He was only released, at last, by the advance of a large sum of money to the new favorite, Villiers (see *Buckingham*); and, to retrieve his broken fortunes, he planned another expedition to America. He obtained a patent under the great seal for making a settlement in Guiana; but, in order to retain a power over him, the king did not grant him a pardon for the sentence passed upon him for his alleged treason. How far Raleigh knowingly deceived the court by his representations of rich discoveries, and gold mines, it is impossible now to ascertain; but, having reached the Orinoco, he despatched a portion of his force to attack the new Spanish settlement of St. Thomas, which was captured, with the loss of his eldest son. The expected plunder, however, proved of little value; and sir Walter, after having, in vain, attempted to induce his captains to attack other Spanish settlements, arrived at Plymouth in July, 1618. In the mean time, the Spanish ambassador had produced such an effect upon James (see *James I*), who was seeking the hand of the Infanta for his son Charles, that Raleigh was arrested, and committed to the Tower. James had reason to be offended with the conduct of Raleigh against a power in amity with himself, and might have tried him for this new offence; but, with his usual meanness and pusillanimity, determined to execute him on his former sentence. Being brought before the court of king's bench, his plea of an implied pardon by his subsequent command was overruled; and, the doom of death being pronounced against him, it was carried into execution the following day (October 29, 1618), in Old Palace-yard. His behavior at the scaffold was calm; and, after addressing the people at some length in his own justification, he received the stroke of death with perfect composure. Thus fell sir Walter Raleigh, in the sixty-sixth year of his age, by one of the most odious acts of the disgraceful reign of James I. As a politician and public character, this eminent person is open to much animadversion; but, in extent of capacity and vigor of mind, he had few equals, even in an age of great men. His writings are on a variety of topics, poetical, military, maritime, geographical, political, and historical. Most of his miscellaneous pieces have ceased to be interesting, but his History of the World is one of the best specimens of the English of his day, being at once the style of the statesman and the scholar. The compass of the work did not admit fulness of narrative, but he is often an acute and eloquent reasoner on historical events. The best edition is that of Oldys (1736, 2 vols., fol.). Of his miscellaneous works, an edition by doctor Birch was published in 1748, in two volumes, octavo.

Raleigh, city, and metropolis of North Carolina, in Wake county, six miles west of Neuse river, sixty miles north of Fayetteville, one hundred and forty northwest of Newbern, and two hundred and eighty-eight from Washington; lat. 35° 47′ N.; lon. 78° 48′ W; population in 1830, 1700. It has a pleasant and elevated situation in a healthy country. Besides the government buildings, it contains many others for public use, which are convenient and elegant. In the centre of the town is a pleasant square containing ten acres, from which extend four streets, dividing the city into four quarters. The four large streets are ninety-nine feet wide, and the others sixty-six. The state house, in the centre of the square, was burnt down in the summer of 1831, and the statue of Washington, by Canova, almost destroyed. There are several highly respectable schools for males and for females. The trade of Raleigh is chiefly with Fayetteville, Newbern, and Petersburg. Boats have sometimes ascended the Neuse within eight miles of Raleigh. Near the town is an excellent quarry of granite, and one of steatite twelve miles distant.

Rallentando, also **Ritardando**, or **Lentando** (*Italian*), in music, indicates that the time of the passage over which it is written, is to be gradually retarded.

Ralph, James, a native of Philadelphia, in North America, went to England as a literary adventurer in 1725, in company with Benjamin Franklin. In 1728, Ralph published a poem, entitled "Night," to which Pope thus alludes in the Dunciad:—

"Silence, ye wolves, while Ralph to Cynthia howls,
Making night hideous,—answer him, ye owls!"

He afterwards attempted the drama, but without success; and having produced a tragedy, a comedy, an opera, and a farce, he took up the employment of a party writer. In 1742, he published an Answer to the Memoirs of Sarah, Duchess of Marlborough; and in 1744, appeared his History of England, during the reigns of Charles II, James II, William III, &c. (2 vols., folio), which, as a work of research, is by no means destitute of merit. He was at length connected with the politicians and literary men who were attached to the service of Frederic, prince of Wales; in consequence of which, Ralph is said to have become possessed of a manuscript written by the prince, or under his direction, to which so much importance was attributed, that a gratuity or a pension was bestowed on the holder, as a compensation for surrendering it. He obtained a pension after the accession of George III, but he did not long enjoy it, as his death took place in 1762. Besides the works mentioned, he published a treatise on the Use and Abuse of Parliaments (2 vols., 8vo.); the Case of Authors by Profession (8vo.); and a number of political pamphlets.

Ram, Battering. (See *Battering Ram.*)

Ramberg, John Henry, distinguished for his paintings and etchings, was born in 1767, in Hanover. He first showed his talent by drawings of scenes in the Hartz mountains. These drawings became known to the king of England, his sovereign, as elector of Hanover, who induced him to go to London, where he provided for him. He remained nine years in that capital, and perfected himself under Reynolds. Murphy, Bartolozzi, and other engravers of the first rank in England, engraved drawings of his. In 1788, the king sent him to Italy, whence he returned to Hanover, where he was appointed painter to the court. Few painters and designers have produced so many works as he has; but this rapidity prevented the full developement of his talent. Ramberg distinguished himself particularly in the humorous caricature. The drawings to the magnificent edition of Wieland's works are all by him: some he etched himself.

Rambouillet, a village of France, thirty miles south-west of Paris, and near the extensive forest of the same name. Here is situated a royal castle, with extensive grounds, and several large buildings connected with it. The castle has a fine library, and there is a celebrated breed of merino sheep here, introduced by Louis XVI, in 1786. Rambouillet was bought by that prince in 1778, and was one of his favorite residences. It was also the favorite resort of Charles X for hunting and here he retired when obliged to abandon St. Cloud, after the revolution of 1830. He was, however, forced to quit Rambouillet for Cherbourg, by the approach of a Parisian force on the night of August 3d.

Rameau, Jean Philippe, an able French theorist in the science of music, was a native of Dijon, born in 1683. Having, at an early age, acquired some skill in music, he joined a strolling company of performers, by whose assistance a musical entertainment of his composition was represented at Avignon, in the eighteenth year of his age. He was afterwards appointed organist in Clermont cathedral, ap plied himself to the study of the principles of his profession, and, in 1722, printed the first fruits of his investigation in a treatise, entitled *Traité de l'Harmonie.* Four years after appeared his *Nouveau Système de Musique Théorique*, which was followed by his *Génération Harmonique.* In 1750, he published his celebrated *Dissertation sur le Principe de l'Harmonie*, in which he reduces harmony to one single principle—the fundamental bass, on which he proves all the rest to depend. This work procured him an invitation from the court to superintend the opera at Paris. He possessed a great facility in adapting words to music, and piqued himself so much upon this talent, that he is said to have declared he would set a Dutch gazette, if it was required of him. His remaining theoretical works are, Remarks on the Demonstration of the Principles of Harmony; Reply to a Letter of M. Euler (both printed in 1752); On the Instinctive Love of Music in Man (1754); On the Mistakes of the Encyclopædia with Respect to Music (1755); and a Practical Code of Music (1760). He was also the author of six operas, *Hippolyte et Aricie*, *Castor et Pollux*, *Dardanus*, *Samson*, *Pygmalion*, and *Zoroaster*, besides a great variety of ballets and other minor pieces. Louis XV acknowledged his merits by the grant of a patent of nobility, and the order of St. Michael. Rameau died at Paris, in 1764.

Ramillies; a village of Belgium, in South Brabant, thirteen miles north of Namur, and twenty-six south-east of Brussels. May 23, 1706, the duke of Marlborough (see *Churchill*) gained here a signal victory over the French under marshal Villeroy and the duke of Bavaria. The numbers were about 60,000 on each side: the loss of the allies was 4000 men, that of the French 15,000. The consequence of the battle was the immediate evacuation of Flanders by the French.

Ramler, Charles William, a German lyric poet, translator, and critic, was born at Colberg, in 1725, studied at Halle, and was appointed a professor in the royal military school for young noblemen in Berlin, in 1748. In 1790, he became co-director of the theatre of Berlin. He died in 1798. Ramler appeared at a period poor in poets, and attached his fame to that of Frederic the Great, whom he celebrated as Horace did Augustus. From this circumstance, and from his occasional imitations of Horace, he has been called the German Horace, but is greatly below his model. Ramler had little poetical genius, but he did much to polish German versification. His ideas respecting German prosody were, however, very deficient. He translated many of the classics. His poetical works appeared in two volumes (Berlin, 1800, 4to. and 8vo.); a pocket edition, in the same place (1825, 2 vols., 12mo). Ramler wrote also in prose. The words to Graun's celebrated oratorio (the Death of Jesus) are by him.

***Rammelsberg.** (See *Hartz.*)

Rammer is a cylindrical block of wood nearly fitting the bore of a cannon, and fastened on a wooden staff, or on a stiff rope well served with spun yarn. It is used to drive the charge of a cannon home, or to the innermost part of it. The rope-rammers are most general in ships of war.

Rammohun Roy was born about the year 1780, at Bourduan, in the province of Bengal. The first elements of his education he received under the paternal roof, where he also acquired a knowledge of the Persian language. He was afterwards sent to Patna to learn Arabic; and here, through the medium of translations of Aristotle and Euclid, he studied logic and mathematics. When he had completed these studies, he went to Calcutta to learn Sanscrit, the sacred language of the Hindoo scriptures, the knowledge of which was indispensable to his caste and profession as a Bramin. (See *Caste*, and *Bramin.*) About the year 1804 or 1805, he became possessed, by the death of his father and of an elder and younger brother, of the whole family property, which is said to have been very considerable. He now quitted Bourduan, and fixed his residence at Mourshedabad, where his ancestors had chiefly lived. Shortly after his settlement at this place, he commenced his literary career by the publication of a work in the Persian language, with a preface in Arabic, which he entitled, Against the Idolatry of all Nations. The freedom with which he animadverted on their respective systems gave great umbrage, both to the Mahommedans and the Hindoos, and created him so many enemies that he found it necessary to remove to Calcutta, where he again took up his residence in the year 1814. Two years previously to this period, he had begun to study the English language; but he did not then apply to it with much ardor or success. Being some years after appointed dewan, or chief native officer in the collection of the revenues, and the duties of his office affording him frequent opportunity of mixing with English society, and of reading English documents, he applied to it with increased attention, and very soon qualified himself to speak and write it with considerable facility, correctness and elegance. He afterwards studied the Latin, Greek and Hebrew languages. A careful study of the sacred writings of the Hindoos had convinced him that the prevailing notions respecting the multiplicity of deities, and the superstitious devotion to the licentious and inhuman customs connected with them, were grounded upon a gross perversion of their religion. These original records appeared to him to inculcate a system of pure Theism, which maintained the existence of one God, infinite in his perfections and eternal in his duration; and that it required from its professors a mental rather than a corporeal worship, accompanied by strict and exemplary virtue. Having embraced these views of the Hindoo theology and morals, he became anxious to reform the creed and practice of his countrymen, and determined to devote his talents and his fortune to this important and honorable undertaking. The sacred books or Vedas (see *Indian Languages and Literature*) contain the religious documents of the Hindoos. This work Rammohun Roy translated from the Sanscrit into the Bengalee and Hindoo languages, and distributed the translation gratuitously. This he afterwards published in English, for the purpose of proving to his European friends, "that the superstitious practices which deform the Hindoo religion, have nothing to do with the pure spirit of its dictates." But, as might be expected, his benevolent conduct, and zeal for the good of his fellow men, exposed him to many personal inconveniences. He has had, nevertheless, the gratification of witnessing the beneficial effects of his labors. From the perusal of the New Testament, in his "long and uninterrupted researches into religious truth, he found (he says) the doctrines of Christ more conducive to moral principles, and better adapted for the use of rational beings, than any other which had come to his knowledge." As the most likely method of acquiring a correct knowledge of his doctrines, he mined upon a careful perusal of the h and Christian scriptures in their al languages. From this undertak- rose with a full conviction that istian religion is true and divine. he accordingly published a work, the Precepts of Jesus the Guide and Happiness, consisting chiefly tion of moral precepts from the Evangelists. In this undertaking he was governed by the consideration, that historical and some other passages are liable to the doubts and disputes of free-thinkers and anti-Christians, especially miraculous relations, which are much less wonderful than the fabricated tales handed down to the natives of Asia, and would consequently be apt at best to carry little weight with them. Rammohun Roy, in his doctrinal views, is a Unitarian, holding, however, the pre-existence and superangelic dignity of Christ, and considering the doctrine of the Trinity as a species of polytheism, objectionable in itself, and calculated to prevent the adoption of what he considers the Christian faith by the natives of Hindoostan.—See *Correspondence relative to the Prospect of the Reception of Christianity in India* (Cambridge, New England, 1824). This work was soon after followed by the First, Second, and Final Appeal to Christians, in reply to the animadversions of Dr. Marshman, Baptist missionary at Serampore, who defended the Trinitarian views of the deity of Christ, and the atonement. Rammohun Roy has recently arrived in England.

Rampant, in heraldry; a term applied to a lion, leopard, or other beast, that stands on his hind legs, and rears up his fore feet in the posture of climbing, showing only one half his face, as one eye, &c. It is different from *salient*, in which the beast seems springing forward.

Ramsay, David, M. D., an eminent American physician and popular historian, was born April 2, 1749, in Lancaster county, Pennsylvania. His father was an Irish emigrant, and a respectable farmer. In 1765, he graduated at Princeton college, and for two years subsequently was tutor to the children of a wealthy gentleman of Maryland. He then studied medicine in Philadelphia, till early in the year 1772. He commenced the practice of his profession in Maryland, and, after a year, removed to Charleston, South Carolina, where he soon acquired celebrity. He labored zealously with his pen to promote the independence of his country. For some time he attended the army in the capacity of a surgeon, and was at the siege of Savannah. He was a leading member of the legislature of South Carolina, from 1776 to the conclusion of the war. He was a member of the privy council part of the time, and, with many of the most respectable citizens of Charleston, suffered banishment, by the enemy, to St. Augustine. He was released, after an absence of eleven months, and resumed his seat in the legislature of the state, where he distinguished himself by opposing the acts confiscating the estates of those who adhered to Great Britain, many of whom he thought acted from feelings of duty. In 1782, he was elected a member of the continental congress, and continued in that body till the close of the war. In 1785, he was elected to represent the Charleston district in congress, and, in consequence of the absence of Mr. Hancock, he was chosen its president, *pro tempore*, and filled the station for a year with great credit. In the following year, he again returned to his profession, and his literary pursuits. He died May 8, 1815, in consequence of wounds received two days previous from the pistol of a maniac, in open day, within a few paces of his dwelling. As a politician, doctor Ramsay was disinterested and patriotic. He always endeavored to allay invidious passions, and inculcate unanimity. As a speaker, he was fluent, rapid, and ready. Doctor Ramsay's character, as an author, is well known. In 1785, he published a history of the revolution in South Carolina, which was translated and published in France. In 1790, he published the History of the American Revolution, which passed through two large editions; in 1801, the Life of Washington; in 1808, the History of South Carolina, being an extension of a work entitled A Sketch of the Soil, Climate, Weather and Diseases of South Carolina, published in 1796. These are his most important publications. Besides his published works, doctor Ramsay left, among his manuscripts, a History of the United States, from their first settlement as English colonies to the end of the year 1808; and a series of historical volumes, entitled Universal History Americanized, or an Historical View of the World, from the earliest Records to the Nineteenth Century, with a particular Reference to the State of Society, Literature, Religion, and Form of Government of the United States of America. The first was published early in 1817, with a continuation to the treaty of Ghent, by the reverend Samuel Stanhope Smith, and other literary gentlemen (in 3 vols., 8vo.). The latter, which had occupied doctor Ramsay's leisure during more than forty years, was published in 1819 (12 vols., 8vo.). In private life, doctor Ramsay was remarkable for all the virtues by which it is adorned. In every way that he could advance the general welfare of society, he was active and zealous, even imprudently so, as the wreck of his private fortune bears witness. He never allowed himself any intermissions of study that were not indispensable for the preservation of health, and gave but four hours in the night to sleep.

Ramsay, Allan, the Scottish Theocritus, born in 1685, in a little village in the south of Scotland, was the son of a peasant. He went to Edinburgh at the beginning of the last century, as apprentice to a barber. Having obtained notice for his social disposition and his talent for the composition of verses in the Scottish idiom, and having changed his occupation for that of a bookseller, he became intimate with many of the literary characters of his time. He published, in 1721, a volume of his own poetical compositions, which was favorably received, and undertook to make a collection of ancient Scottish poems, under the title of the Evergreen. He was afterwards encouraged to present to the world a collection of Scottish Songs. From what source he procured the latter is uncertain; but as, in the Evergreen, he made attempts to improve on the originals of his ancient poems, he probably used still greater freedom with the songs and ballads. To several tunes, words were adapted worthy of the delightful melodies they accompanied. In the execution of this part of his undertaking, Ramsay associated with himself several men of talent; and the respective shares of the editor of the Scottish Songs and his coadjutors, in the original compositions, cannot now be ascertained. Ramsay's principal productions are the Gentle Shepherd, and two additional cantos of Christis Kirk of the Grene, a tale, the first part of which is attributed to James I of Scotland. The latter, though objectionable in point of delicacy, has been regarded as the happiest of the author's effusions. His chief excellence, indeed, lay in the description of rural characters, incidents and scenery; and he was well acquainted with the peasantry of Scotland, their lives and opinions. In his Gentle Shepherd (a rural drama), the characters are delineations from nature; the descriptive parts are in a style of beautiful simplicity, and the passions and affections of rural life are finely delineated. Throughout the whole there is an air of reality which cannot but strike the most careless reader; and no poem, perhaps, ever acquired so high a reputation, in which truth received so little embellishment from the imagination. When he attempts descriptions of high life, and aims at pure English composition, he fails entirely, becoming feeble and uninteresting; neither are his familiar epistles and elegies in the Scottish dialect entitled to much approbation. He died in 1758.

Ramsden, Jesse, an eminent mechanist and optician, was born at Halifax, in Yorkshire, in 1738. He applied himself to engraving, and, in the course of his employment, having to engrave several mathematical instruments, finally constructed them himself. He married a daughter of Mr. Dolland, the celebrated optician, and opened a shop in the Haymarket, whence he removed to Piccadilly, where he remained until his death, in 1800. Ramsden obtained a premium from the board of longitude, for the invention of a machine for the division of mathematical instruments; he also improved the construction of the theodolite, the pyrometer for measuring the dilatation of bodies by heat, the barometer for measuring the height of mountains, &c.; also the refracting micrometer and transit instrument and quadrant. He made great improvements in Hadley's quadrant and sextant, and procured a patent for an amended equatorial. Mr. Ramsden, who was chosen a fellow of the royal society in 1786, was distinguished during the whole of his life by an enthusiastic attention to his own profession, which formed his amusement as well as his occupation; and such was his reputation, that his instruments were bespoken from every part of Europe; and ultimately to obtain the fulfilment of an order, was deemed a high favor.

Ramsgate; a fashionable bathing place in the isle of Thanet, five miles from Margate, and seventy-three east of London. It has an excellent artificial harbor, formed by immense piers, extending 800 feet into the sea; more than 300 sail have been sheltered in it at once; population, 6030.

Ramus, Peter, a philosopher of the sixteenth century, was a native of France. He went to Paris about 1523, when he was but eight years old, and became a lackey in the college of Navarre. Such was his strong inclination for learning, that he not only devoted to study all the time he could spare in the day, but also a part of the night. After attending a course of philosophy, he was admitted to the degree of M. A., on which occasion he contested the infallibility of Aristotle. His opinions excited violent opposition, and the partisans of the Aristotelian philosophy had recourse to the civil power, in order to silence their adversary. His publications were prohibited, and ordered to be burnt before the royal college of Cambray, and he was commanded to abstain from teaching his doctrines, in 1543. Having obtained the patronage of the cardinal De Lorraine, the prohibition of lecturing was withdrawn in 1547; and, in 1551, he was appointed royal professor of rhetoric and philosophy at Paris. His spirit of free inquiry ultimately led him to become a Protestant. This change obliged him to flee from Paris; but, in 1563, he was restored to his chair. In the massacre of St. Bartholomew's, 1571, Ramus was one of the victims. His works, relating to grammar, logic, mathematics, &c., are numerous.

Rana. Under this head we shall not go into a description of this genus of reptiles, but shall confine ourselves to an account of the frogs which make so important a part of it. Toads the reader will find described in a separate article. The muzzle of frogs terminates more in a point than that of toads. The nostrils are visible at its summit. The teeth are very small; the eyes large and brilliant, and surrounded with a yellow circle; the ears are placed behind them, and covered by a membrane. The muscles of frogs are considerable in relation to their bulk, and peculiarly elastic, strong, irritable, and sensible to the action of galvanism. Their general sensibility does not appear to be great; they are killed with difficulty; the heart contracts and dilates a long time after the death of the animal, and even when it has been extracted from the body. The ordinary mode of progression is by leaps. Frogs feed on the larvæ of aquatic insects, on worms, small mollusca, flies, &c., and always choose a prey which is living and in motion. They are useful in gardens by destroying great quantities of small slugs. These reptiles are usually found during the summer on the ground in humid places, in the grass of meadows, and on the banks of streamlets, into which they continually leap and dive. They swim well and without difficulty by means of their hinder feet, the toes being united by a membrane. At the close of warm rains in the fine season, they frequently spread themselves through the country. To this is owing the popular belief in the rains of frogs—a very ancient prejudice. Frogs are distinguished by a peculiar cry, termed *croaking*, particularly during rain and hot weather, in the morning and evening. During the feudal *régime* in France, when the castles were surrounded with water, it was the occupation of the slaves or villains to strike the water of the dikes morning and evening to prevent the frogs from disturbing the repose of their masters. Even up to the period of the revolution, this custom existed in many places. As soon as the summer is over, and the weather begins to be a little cold, the frogs lose their natural voracity, and cease eating. As the cold increases, they sink into the mud of deep waters, the holes of fountains, and sometimes even into ground not covered by water, and pass the winter in profound lethargy. The female lays annually from six to twelve hundred eggs; and frogs can live a great number of years if they escape their enemies,—serpents, pikes, vultures, storks, &c.,—which destroy immense quantities of them. In France they are much used for food, and in Germany also. The continental physicians employ their flesh, variously prepared, in the treatment of a number of diseases. There are numerous species of this animal. The *green frog* (*rana esculenta*) is about two or three inches long, without reckoning the hinder feet. It abounds in stagnant waters on the continent of Europe and in Asia, but is less common in England than the *rana temporaria*. It seldom comes to land, and never removes from the banks of streams, ponds, or lakes. The *rana temporaria*, or common frog of England, is tolerably abundant throughout Europe, prefers wooded and mountainous situations, and frequents meadows and gardens during fine weather. It is generally found on land in summer. At the approach of winter, it retires into fountains and ponds of pure water, but does not bury itself in the mud at the bottom. The *rana clamitans*, found in Carolina, of an obscure color, is the liveliest of all known frogs. It croaks continually, and never removes far from the shore. The *rana pipiens*, called in the U. States *bull frog*, is the largest species of this genus, being three or four inches broad and six or eight in length, without including the feet; with the limbs extended, it measures about eighteen inches. It inhabits North America, particularly the southern part of the U. States. Its cry is very deep and hoarse. It is very fond of young ducks and goslings, which it swallows whole. On level ground, it makes leaps of from six to eight feet. The *rana grunniens*, if distinct from the preceding species, is fully as large. It is found in the West Indies, and is said to be able to clear, with a leap, a wall five feet high. The *rana paradoxa* is found at Surinam, and in other countries of South America. As the adult animal is less than the tadpole, in consequence of the loss of an enormous tail, and of some envelopements of the body, some observers formerly supposed that the animal passed from the frog to the tadpole state, and was subsequently transformed into a fish; this error, however, is completely refuted.

Rancé. (See *Trappe, La.*)

Randolph, Peyton, president of the first congress, was descended from one of the most ancient and respectable families of Virginia. After passing with credit through the college of William and Mary, he was sent to England to pursue a course of legal study at the Temple. On his return to Virginia, he entered at once into practice. In 1748, when he was about twenty-five years of age, he was the king's attorney-general for the colony. In the same year, he was elected a member of the house of burgesses for the city of Williamsburg, and, during the session, was placed at the head of a committee appointed to prepare a general revisal of the laws of the colony. From this period, he continued to be a conspicuous and useful member of the legislature. Lieutenant-governor Dinwiddie, soon after his arrival, in 1752, attempted to impose an exorbitant charge for his signature to every patent for land. This being unauthorized by any law, the house of burgesses chose Mr. Randolph to oppose it before the king and council. He accordingly repaired to England, and urged the suit, but without success. In 1755, when the defeat of general Braddock, and the retreat of colonel Dunbar, had laid the frontiers of Pennsylvania, Maryland and Virginia, completely open to the inroads of the savages, Mr. Randolph, and various other gentlemen, formed themselves into a regiment, and marched to the frontier to join the colonial force under colonel Washington; but the enemy retreated to fort Du Quesne without any engagement taking place. In 1764, he drew up an address from the house of burgesses to the king of Great Britain against the passage of the stamp act. April 12, 1766, he was chosen speaker of the house, and, about the same time, resigned the office of attorney-general. In all the measures of opposition to the English government, he took a prominent part. He was chairman of the committee of correspondence, appointed, by the legislature, to obtain early and authentic information of all such acts of the British government as might bear upon the interests of the colonies, and to maintain a constant communication, on these subjects, with the legislatures of the other colonies, and which, by its recommendations, brought about the meeting of the first general congress at Philadelphia. To that assembly he was sent as a delegate from his native province, and was immediately elected its president. In consequence, however, of indisposition, he retained it only for five or six weeks. On the 20th of the ensuing March, he presided at the convention of deputies, assembled at Richmond, and was again chosen a delegate to the congress which was to be held at Philadelphia on the 10th of May. A few days after the meeting of congress, in May, 1775, lord North's conciliatory proposition having arrived in America, Mr. Randolph returned to Williamsburg, to be present at the assembling of the house of burgesses of Virginia, which the governor had summoned, in order to lay before them the proposition. He resumed his situation as speaker of the house, and consigned to Jefferson the task of drawing up the answer to the British minister—how properly, that bold and masterly production is sufficient evidence. After the adjournment of the house of burgesses, he returned to congress; but his services there were of short continuance. A stroke of apoplexy put an end to his patriotic career, Oct. 21, 1775, in the fifty-third year of his age.

Randolph Macon College is situated one mile west of Boydton, in Mecklenburg county, Virginia, 100 miles south-south-west of Richmond. The college edifice is built after the Tuscan order, and is to be completed in the summer of 1832. It is four stories high, and is divided into sixty-one rooms. It consists of a centre, fifty-four by fifty-two feet, and two wings, of sixty-seven and a half feet each in length, thus making a front of 189 feet. A president and four professors have been elected, and the institution is expected to go into operation in the autumn of 1832. It is under the control of the Methodist Episcopal church, and is well endowed. A preparatory school has been established half a mile from the college. Boydton is a flourishing and very pleasant town, situated six miles north of Roanoke river, and is the seat of justice for Mecklenburg county.. It has a Methodist and a Presbyterian church.

Ranelagh Rotunda and Gardens; near Chelsea, built and opened for musical performances, in 1742. Degenerating into a scene of licentiousness, it was shut up in 1803, since which the buildings have been wholly demolished.

Range, in gunnery; the path of a bullet, or the line it describes from the mouth of the piece to the point where it lodges. —*Range* is also the distance to which a bomb or cannon-ball is thrown from a piece of artillery by the explosion of gunpowder. The flight of a shot is distinguished by artillery men into two different ranges, of which the first is called the *point-blank*, and the second the *random shot*. To these also may be added the *ricochet*, or *rolling* and *bounding shot*. The point-blank range is the extent of the apparent right line described by a ball discharged from a cannon. The random shot is when, by letting the breech down upon the bed of the carriage, the ball is carried to its greatest possible distance, and describes a curve in its flight. The ricochet is fired by elevating the piece from three to six degrees, and only charging it with a quantity of powder sufficient to carry the shot along the face of the works attacked. The shot thus discharged, so as to go just over the parapet, rolls and bounds about, killing, maiming, or destroying all it meets in its course, creating much more disorder, by going thus slowly, than if thrown from the piece with greater violence. As one of the effects of the bomb results from its weight, the range of mortars is extremely different from that of cannon, because the former is not pointed at a certain object, like the latter, but inclined to the horizon at a certain angle, so that the bomb, being thrown up obliquely, may fall upon the place intended: hence it appears that the mortar has no point-blank range, or, at least, that no use is made of it. *Ricochet* signifies *duck and drake*—a name given to the bounding of a flat stone thrown almost horizontally into the water. It was the opinion of engineers formerly, that, by charging the pieces high, the ball was thrown to a greater distance: hence the pieces were charged with two thirds, or even the whole weight of the shot, in order to impel it with greater velocity; but it has been discovered since, that the half or one third of the weight of the ball is the fittest charge for the piece. It may not be amiss to observe here, that the range of cannon is greater in the morning and at night than at noon, and in cold than in hot weather. The reason is, that, at these times, the air being less heated, gives less way to the dilatation of the powder, which being, by these means, confined, as it were, to a smaller sphere of action, must have a stronger effect in proportion. When the lengths of cannon are proportionable to the height of the charge, the shot will be discharged with the same velocity, whatever the calibre may be. The greatest distance to which a shell can be thrown, with the strongest charge, is little more than about 1800 or 2000 fathoms.

Ranger; an officer of a forest, appointed to drive the deer back from the purlieus, to present trespasses, &c.

Rangoon (formerly *Dagoon*); a city of Birmah, in Pegu; 600 miles south-east of Calcutta; lon. 96° 9′ E.; lat. 16° 47′ N. It is the principal port of the Birman empire, situated on a branch of the Irrawaddy, or Ava, called the *Rangoon* river, thirty miles from the sea, and was founded in the year 1755, by Alompra, king of Birmah, who had taken the country from the king of Pegu. The river is commodious for building ships, and the forests of Birmah and Pegu yield teak wood. The population has been estimated at 30,000, but is not more than 12,000. It was taken by the English in 1824, but restored. The American Baptist missionary society has a mission here.

Rank. In the article *Ceremonial of European Powers*, we have spoken of the former and present arrangement of rank among them. As to the distinctions of rank among individuals, these will always be more marked in proportion as the government of a country is arbitrary, and the civic spirit dead. The Roman and Byzantine imperial courts exhibit a striking instance of the importance attached to these distinctions, when compared with the vigorous period of republican Rome. In Russia, the most absolute government in Europe, the people are divided into fourteen classes; and whoever becomes a member of one of the eight highest, receives nobility for himself and family. The rank of all these classes is estimated with reference to military degrees; thus a doctor of medicine, if we are rightly informed, is equal in rank to a captain of infantry. In a country where the mania for titles is carried to such excess as in Germany (see *Counsellor*, *Ceremonial*, and the note to article *Majesty*), it may easily be imagined that there must have been an abundance of contested questions respecting rank. In the seventeenth and eighteenth centuries, these prevailed there, and in other countries of the European continent, to a ridiculous extent. There are, in England, above sixty degrees of precedency; but these are intended principally to designate the order to be observed in processions, and on other occasions of ceremony, and have little to do with determining the respect which is paid to men in society.

Rank, in war, is a row of soldiers placed side by side; while **file** is a number drawn up in a direct line behind each other.

Ranunculus; a genus of plants containing about 150 species, almost exclusively inhabiting the northern hemisphere. We have several in the U. States, and three introduced species are very conspicuous in fields and meadows, from their yellow flowers, commonly called *butter-cups*. Several are cultivated in gardens for ornament. The species of *ranunculus* are herbaceous plants, with entire lobed or dissected leaves, and usually terminal flowers, of a yellow color, but, in a few species, white. The calyx consists of five caducous leaves. There are five petals, and numerous stamens, surrounding a cluster of one-seeded capsules. Almost all are acrid and caustic, poisonous if taken internally, and, when externally applied, will raise blisters, which are followed by deep ulcerations, if left on too long. Beggars sometimes avail themselves of this property to produce ulcers, in order to excite pity. This acrid principle is destroyed by desiccation or immersion in hot water.—The *R. Asiaticus* is a native of the Levant and North Africa, and was first brought to Europe by the crusaders. It is now a favorite ornamental plant, which has produced innumerable varieties, of every shade and combination of colors excepting blue. The flowers are double and semi-double, and often two inches or more in diameter.

Ranz des Vaches (in German, *Kuhreihen*) is the name of the celebrated national air, which the herdsmen of the Alps in Switzerland sing or play when they drive out the herds. It consists of a few simple intervals, is entirely adapted to the simple life of these people and their instrument (the *Alpenhorn*, horn of the Alps), and has an uncommon effect in the echoes of the mountains. This effect becoming intimately associated with the locality of Switzerland, explains the many anecdotes of the home-sickness caused by the sound of the *Ranz des Vaches*, when heard by Swiss in foreign countries. There are, however, variations in the melody, and we find, even in Rousseau's *Dictionnaire de Musique*, several *Ranz des Vaches*. In 1815, appeared at Berne, the second edition of a complete collection of these airs. Appenzell is said to have the most genuine and original *Ranz des Vaches*.

Raoul-Rochette, Désiré, a distinguished French archeologist and numismatist, was born at St. Amand, in 1790, and, after having taught in the imperial *lycée*, was appointed adjunct professor of modern history in the *faculté des lettres de Paris*. In 1818, he succeeded Millin as conservator of the cabinet of antiquities and medals in the *Bibliothèque Royale* in Paris. Among his works are *Histoire antique de l'Établissement des Colonies Grecques* (4 vols., 1815); *Antiquités Grecques du Bospore Cimmérien* (1822); *Lettres sur la Suisse*; *Histoire de la Révolution Helvétique de* 1798 *à* 1803 (1823); and *Histoire d'Espagne* (1825).

Rape (*brassica napus*); a cruciferous plant, with small yellow flowers, belonging to the same genus with the cabbage and turnip, and cultivated, to a considerable extent, in many parts of Europe. There are two varieties, the rape and cole, the latter distinguishable by its greater height, fewer branches, and its being more soft and tender. Both are frequently sown intermixed. When sown separately, the cole is usually used as fodder for sheep, and the rape allowed to remain for the seed. The harvest commences in the month of August, when the pods are yellow, but before perfect maturity; and, as the seed is easily shed, it is customary in some places to thresh the plants in the field, upon a large cloth. Oil is obtained from the seeds by pressure, and is used in large quantities for various economical purposes, for making the soap called *green soap*, for burning in lamps, by clothiers and others; also in medicine, &c., &c. It is apt to become rancid, though there are means of purifying it. The oil-cake is sometimes employed for fattening oxen, or as a manure. The roots may be eaten as a substitute for turnips, but they have a stronger taste. The stalks are generally burnt, and the ashes, which are very rich in alkaline matter, are collected and sold. A mixture of rape and millet seed is frequently employed as food for cage birds. This plant grows wild in many parts of Europe. The radical leaves are lyrate, and the superior ones very smooth, and embracing the stem.

Rape Cake. (See *Rape*, and *Manure*.)

Raphael, or **Raffaello** Sanzio or de' Santi, the greatest painter of the modern, or, as he is considered by many, the last of the ancient school of art, was born at Urbino, on Good Friday, March 8, 1483, and died at Rome, on Good Friday, April 7, 1520. A Madonna and Child, painted by him on the wall of the yard of his father's house, without his having received any instruction (which painting was subsequently transferred, together with the portion of wall on which it was painted, to a room in the house, where it may still be seen), convinced his father, Giovanni Sanzio, an indifferent painter, of his own incompetency to do justice to the talents of his son, and induced him to place him in the school of an abler master. At his request, Perugino (q. v.) received the young painter into the number of his pupils. Raphael soon surpassed his numerous compeers, and, in a short time, so completely acquired his teacher's manner, that it is difficult to distinguish the works of the two belonging to this period. This is shown by Raphael's first works,—the Coronation of the Duke Niccolò da Tolentino, a Crucified Savior between two Angels, a Holy Family, a Betrothal of Mary, and, particularly, the Crowning of Mary, for the Franciscan convent in Perugia,—all executed by him between his fifteenth and eighteenth years. During this time, the painting of the library of the cathedral at Sienna was intrusted to Pinturicchio, who had been a fellow pupil of Raphael, and now invited him to assist in this labor. Raphael had already completed a great part of the cartoons for this purpose, when he learned that the cartoons of Michael Angelo and Leonardo da Vinci, which had been prepared by these two great artists in consequence of the prize offered by the city of Florence, were publicly exhibited in that city. Burning with desire to behold them, he hastened to Florence. These cartoons, and Florence itself, then the seat of all that was beautiful, made a deep impression on his youthful sensibilities; and he derived great advantage from the acquaintance of many young artists of distinction—Ghirlandaio, San Gallo, &c. Although Raphael's biographers do not expressly say that he studied assiduously, in Florence, the works of the earlier masters, Cimabue, Masaccio, Giotto, Verocchio, Ghiberti, as Michael Angelo and Leonardo da Vinci had done, the fact is evident from the pictures executed by him while there, among which a Madonna and Child (now in the Tribuna at Florence) is highly commended by Vasari. The death of his parents obliged Raphael to hurry home; and while he was arranging his father's affairs in Urbino, he completed, in his hours of leisure, several paintings, e. g. two Madonnas, a St. George, and probably its pendant, the St.

Michael (now in Paris), Christ praying in the Garden (in Paris), and, in 1504, the Marriage of Mary (*Lo Sposalizio*, now in Milan). His love for Perugia soon induced him to return thither. He there sustained his reputation by several paintings—a Madonna for the church of the Frati de' Servi, a Mater dolorosa, over which he delineated, in a second picture, God the Father (now in the Palace Colonna, at Rome) with some other easel-pieces, and a Christ, with God the Father, surrounded by several Saints, for the small Camaldulian convent, which was his first painting in fresco. All these works partake somewhat of the style of his master, and do not exhibit the grandeur, dignity and power of his later performances, but are distinguished for the sensibility and feeling belonging to the earlier school. His desire for further improvement drew him a second time to Florence, where he zealously pursued his study of the old masters above mentioned, and where his acquaintance with Fra Bartolomeo gave him a more correct knowledge of coloring. He seems to have spent the whole time of his residence in that city in his studies; at least it is known that he executed there nothing but a few portraits and the cartoon for his Entombing of Christ. This picture itself he painted in Perugia, whence it was afterwards transferred to the Borghese palace at Rome. It is a miracle of composition, design and expression, and was surpassed, in these respects, by few of his subsequent performances. After finishing it, Raphael returned, for the third time, to Florence, where his studies became again his chief employment; at least we are able to point out, with certainty, as having been executed at this time, only the excellent Madonna, called *La Bella Giardiniera* (now in Paris), and another Madonna. with the Fathers of the Church (now in Brussels), neither of which was entirely finished by Raphael. His repeated residence in Florence had the greatest influence, not only on himself, but on the whole of the modern school of art. He found that Cimabue, Giotto, Fiesole and the Florentine artists of the time, could not only compete with his teacher, Perugino, in all the departments of art, but that some of them—Masaccio, Fra Filippo Lippi, Mariotto Albertinelli, Ghirlandaio and Fra Bartolomeo—surpassed him in excellence of composition, correctness of design, and liveliness of coloring. In the works of Ghirlandaio, and above all of Masaccio, he found, what he most desired, a grander style in forms, drapery and outline. As Raphael had already acquired the excellences of the greatest masters of his time in Romagna, he now possessed himself of those of the Florentine school, for which he ever entertained a great esteem. A striking proof of this was his copying, in his *loggie*, without the least alteration, two figures by Masaccio, which may still be seen in the Carmelite monastery at Florence, viz. Adam and Eve driven from Paradise by the Angel. Pope Julius II had employed Bramante in rebuilding St. Peter's, and in the embellishment of the Vatican. At Bramante's suggestion, Raphael was, in 1508, invited to Rome. The pope received him with distinguished favor, and the artists of Rome with the greatest respect. Here he executed the *Disputa*, or Dispute of the Fathers of the Church, on the wall of the second chamber, called the *stanza della Segnatura*, next to the great hall of Constantine. Between this painting and his Entombing of Christ there is a similarity, which is not the case with his later performances. In the grouping, also, he has adhered to the style of his earlier predecessors; but the *Disputa* is by far the more perfect of the two. All is life, motion, action: the variety of the characters is admirable; every stroke is full of meaning. If we divide Raphael's works into several periods, the first comprising his earlier performances, executed in the manner of Perugino, the second comprising those which he executed in Urbino, Florence, &c., we recognise in the *Disputa* the transition to the third manner, which is still more clearly manifested in the School of Athens, the second grand painting in this chamber. This painting (which was probably preceded by the Parnassus, the third great painting of the room) displays far more freedom of handling, and more manliness and energy. By it Raphael gained so completely the favor of the pope, that he caused almost all the frescoes of other artists in the Vatican to be effaced, that the rooms might be adorned by him. Raphael painted in their stead, in the above-mentioned *stanza*, the allegorical figures of Theology, Philosophy Justice and Poetry, in the corners of the ceiling; the Fall of Adam, Astronomy, Apollo and Marsyas, and Solomon's Judgment, all having reference to the four principal figures of the apartment; and, lastly, on the fourth wall, over the windows, Prudence, Temperance and Fortitude; below them, the emperor Justinian, delivering the Roman law to Tribonian, and Gregory X giving the Decretals to an Advocate, and, under them, Moses and an armed allegorical figure. In 1511, all the pieces of the first *stanza* or hall were finished. According to Vasari's account, he now executed several less important but excellent frescoes (Isaiah in St. Augustine's, the Prophets and Sibyls in Sta-Maria della Pace, and the celebrated *Madonna di Foligno* in the Vatican). The progress which Raphael made, in his peculiar style, is shown by his next painting in the *stanza*, the Expulsion of Heliodorus from the Temple. Here the style is far more earnest, grand, bold and energetic, the execution far more spirited and masterly. This was followed, in 1514, after the accession of the new pope, Leo X, by his Leo the Great stopping the Progress of Attila, the Deliverance of Peter from Prison, and, on the ceiling of this *stanza*, Moses viewing the burning Bush, the Building of the Ark, the Sacrifice of Isaac, and Jacob's Dream. Nearly contemporary with them are the following easel-pieces: the famous *Madonna del Pesce* (in the Escurial), which was transferred, in Paris, from wood to canvass; his equally beautiful Cecilia, which is said to have been finished by Giulio Romano; a Holy Family, called *La Perla* (in the Escurial); Ezekiel's Dream; among several Madonnas, that called *Dell' Impannato;* Christ bearing the Cross, known by the name of *Lo Spasimo di Sicilia* (now in Madrid); Christ in Glory, surrounded by saints; *I cinque Santi;* his own portrait (now in Munich); the portrait of Leo X (now in Paris), &c. Albert Dürer, induced by Raphael's reputation, is said to have made him an offer of his friendship, and to have sent him several of his own etchings, with his portrait, and to have received, in return, a number of drawings by Raphael's hand. With the Conflagration of the Borgo (*Incendio del Borgo*), extinguished by the Prayers of Leo, Raphael began the third *stanza* of the Vatican. This work is a master-piece for strength and truth of expression, beauty of forms, excellence of grouping and variety. It was followed by the Coronation of Charlemagne, Leo III's Vindication of Himself before Charlemagne, and the Victory of Leo IV over the Saracens at Ostia (on which, however, Raphael's scholars were employed in working from his designs). He next completed the galleries (*loggie*) of the Vatican palace, by which the rooms communicate, and which had been left unfinished by Bramante, and furnished designs for the paintings and stucco-work with which they were to be adorned. The execution of the paintings (excepting four done by himself) Raphael intrusted to Giulio Romano and some of his other pupils, and the stucco-work to John of Udine. In this way was formed a complete series of works of art, which have exalted the palace of the Vatican into a temple of the arts. The pope, charmed with the excellence of these performances, committed to Raphael the decoration of another *stanza* of the Vatican, with images of the saints and apostles, appointed him superintendent of all the embellishments of this palace, and loaded him with marks of honor. During this time, Raphael produced many other excellent pieces, prepared designs for several palaces in Rome and other cities of Italy, and finished the Madonna for the church of St. Sixtus in Piacenza (now in Dresden), unquestionably one of the master-works of his pencil. The loftiness, dignity and sublimity, combined with sweetness, grace and beauty, which reign in this picture, render it inimitable. Other works of this period are St. Michael, the portraits of Beatrice of Ferrara, of his beloved Fornarina, of Carondelet (now in England), of count Castiglione, and of the beautiful Joanna of Arragon (both in Paris). Of the last there are two excellent copies, which are often represented as the work of the artist himself, one in the possession of count Fries at Vienna, the other of Wocher at Basle. To this time, also, belong the frescoes in the Farnesina, representing the life of Psyche in twelve pictures, and Galatea, all, except the last, executed by his scholars; also the designs from the fable of Psyche, altogether different from the former, thirty-eight in number, and the Madonna della Seggiola (now in Paris). It was probably at a later period that Raphael prepared for Augustino Ghigi designs for the building and decoration of a chapel in Sta-Maria del Popolo, and for Leo X the celebrated cartoons (see *Cartoons*) for the tapestry of one of the chambers of the Vatican. These tapestries were afterwards annually exhibited in the Vatican, on the festival of *Corpus Christi*, but have lately been dispersed. This is the more to be lamented, since they have often been preferred to the *stanze* of Raphael, in point of composition, loftiness of character, variety of expression, grouping, attitudes, &c. For painting the fourth *stanza*—the hall of Constantine, in oil—Raphael left only a few sketches, especially of the battle between Constantine and Maxentius, which were used by Giulio Romano and his other scholars, to whom the labor was eventually intrusted. The pictures, however, of Justice and Benignity, in this hall, were probably executed by his own hand. Several easel-pieces, also, seem to have been executed by him about this period; among others, John in the Desert (of which there exist several copies, viz. in Florence, in London, in the gallery of the king of the French, in Vienna, and in Darmstadt: the copies are so good, and so much alike, that the original cannot be distinguished, and is not known); his Madonna and Child, on whom an angel is strewing flowers, and a St. Margaret. Raphael's last and unfinished painting—the Transfiguration of Christ—is in the Vatican. Although critics have objected to this painting that it contains two subjects, and consists of two pictures, every one must concede that it is the most perfect masterpiece which modern art has produced. The composition is so noble, the design so perfect, the expression so elevated and sublime, the characters so various, the coloring (as far as it proceeds from Raphael) so true and vigorous, that it surpasses all his other works in these points. The head of Christ, in which this combination is most admired, is said to have been his last labor. Attacked by a violent fever, which was increased by improper treatment, this great artist died at the age of thirty-seven years. His body was laid out in state in his study, before his Transfiguration, and consigned, with great pomp, to the church of Sta-Maria Rotonda (formerly the Pantheon), where his bones still rest, with the exception of his skull, which was afterwards placed in the academy of St. Luke. His tomb is indicated by his bust, executed by Naldini, and placed there by Carlo Maratti, and by the epitaph of cardinal Bembo:—

Ille hic est Raphael, timuit quo sospite vinci
Magna rerum parens, et moriente mori.

All contemporary authors describe Raphael as kind, obliging, modest and amiable, equally respected and beloved by high and low. The beauty of his figure, and his noble countenance, which inspired confidence, prepossessed the beholder in his favor at first sight. He died unmarried, though by no means averse to women. In accordance with his last will, his property went to his favorite scholars, Giulio Romano and Francesco Penni. When we consider the number of Raphael's paintings, however severe we may be in judging of their genuineness, it seems hardly credible that the entire compass of a human life could be sufficient for their execution. They prove the wonderful fecundity of his genius, and the facility with which he executed. It is, moreover, to be considered that Raphael furnished the designs for a great number of pieces executed by his scholars; devoted much study to his most important paintings (as is shown by the numerous sketches of Madonnas, of the School of Athens, of the Dispute of the Fathers, &c.); and, in many cases, first drew all his figures naked, in order the better to adapt the drapery and its folds to their respective attitudes. And if we further reflect that the supervision of the building of St. Peter's church, and the preparation of designs for the erection of other churches and palaces, with several other collateral tasks, were imposed on him, we must be struck with the highest admiration of his genius. At first, his design, conformably with the taste of the times, and the instruction which he had received, was somewhat stiff and dry. After studying with assiduity nature and the antiques, he formed for himself an ideal, which, by its harmony with nature, touches the feelings, while the Greek ideal rather overpowers by its loftiness. In his manhood, his pencil acquired greater freedom, and his figures became full of life and motion. His drapery, always simple and light, in his latest pieces generally forms large masses, and is excellently arranged, so as not to conceal the parts intended to be shown. In foreshortening, and in perspective, he was imperfect. In coloring, he was, at first, dry; till, taught by Fra Bartolomeo, he consulted nature alone. Although, in this department of the art, he never reached the excellence of Correggio or Titian, his colors always appearing too heavy and dull, yet his St. John in Florence, the Fornarina, and his Transfiguration, show how far he had advanced; and only from these pictures can we form a judgment; for his other works, of the best period, were generally executed by his scholars, or, at most, retouched by him. The distribution of light and shade Raphael understood very well; but, with respect to the *chiaro-scuro*, he is by no means to be compared with the above-mentioned great colorists. On the other hand, composition and expression must almost be considered Raphael's exclusive property; and, in these respects, he has never found a rival. He always selected the moment of action which expressed most clearly the dispositions of the actors. Avoiding all unnecessary exertion of strength, all excess, occupied solely with the object to be represented, he endeavored to give to his persons just so much motion as was requisite. Thence it is that we frequently find in his works straight, simple attitudes, which are, nevertheless, so beautiful in their place, and leave so much room for the expression of feeling. Unlike other artists, he first meditated on the whole of the scene to be represented, and the general character of the expression; next proceeded to the figures, and lastly to the single parts of them. In this way, his figures possess a harmony at which many other artists have aimed in vain. The most distinguished of his scholars were Giulio Pipi Romano, Francesco Penni il Fattore, Polidoro Caldara di Caravaggio, Benvenuto Garofalo, John of Udine, Bartolomeo Ramenghi il Bagnacavallo. These, with their followers, and later imitators, constitute the Roman school, founded by Raphael, which has ever been distinguished above others for the excellences which belonged to its founder. The latest Lives of Raphael are those of Braun (Wiesbaden, 1815), of Fuseli (Zürich, 1815), and of Quatremère de Quincy (Paris, 1825). Marco Antonio (Ant. Raimondi) engraved Raphael's drawings, and Raphael himself is said to have etched the outlines of some of the plates. A *Catalogue des Estampes gravées d'après Rafael, par Tauriscus Eubœus* (count Lepell), appeared, at Frankfort on the Maine, in 1819; and the *Études calquées et dessinées d'après 5 Tableaux de Raph., accompagnées de la Gravure au Trait et de Notices hist. et crit.*, by Emer. David (Paris, 1822). These five pieces are the *Agnus Dei*, *La Perle*, *La Visitation* (since engraved by Desnoyers), *La Vierge au Poisson*, and *Lo Spasimo*, which were carried to France in 1813, were retouched there, and returned to Spain in 1815.

Rapin de Thoyras, Paul, a historian, born at Castres, in Languedoc, in 1661, studied law under his father, who was an advocate, until the revocation of the edict of Nantes drove him to England, and subsequently to Holland, where he entered a company of French cadets. In 1689, he followed the prince of Orange into England, and distinguished himself at the battle of the Boyne. In 1707, he settled at Wesel, in the duchy of Cleves, and devoted himself to the composition of his History of England. He died at Wesel in 1725. His great work, *L'Histoire d'Angleterre* (Hague, 10 vols., 4to., 1725—1726), has been twice translated into English; and Tindal continued it up to 1760. It is prolix and unanimated, but impartial, and contains much solid information.

Rapp, John, count of, a French general during the revolutionary war, was born in Alsatia, in 1772. In 1788, he entered the military service. As aid of general Desaix, he accompanied him during the campaigns in Germany and Egypt. After Desaix had fallen at Marengo, Rapp became aid to Bonaparte, to whom he had carried information of Desaix's death. In 1802, he executed the commission which he had received from the first consul to exhort the Swiss to a cessation of hostilities, and to proffer the mediation of France in the conflict of parties, which had destroyed the tranquillity of the country since its occupation by the French armies. The Swiss submitted to Bonaparte's decision. In the following year, Rapp was despatched to the mouth of the Elbe to superintend the erection of works to protect the country against a landing of the English. On the breaking out of the war against Austria, in 1805, he accompanied Napoleon, and, after the battle of Austerlitz, where he threw the Russian guards into confusion by a bold attack with his cavalry, and took prince Repnin prisoner, he was made brigadier-general. In the war with Prussia and Russia, he also fought with reputation, and, in the summer of 1807, received the chief command in Dantzic, in the room of general Lefebvre. With the exception of a short interruption in 1812, when he distinguished himself in Russia, he remained seven years commander of Dantzic, which he defended after the retreat of the French army from Russia, till 1814, during a severe siege, in which he displayed great talent and brilliant courage, and not till all means of defence were exhausted, and he was compelled by famine, did he capitulate. He was taken, as a prisoner of war, to Kiew. Returning to France in 1814, he was received with distinction by the king, and, in March, 1815, was intrusted with the command of the first *corps d'armée*, destined to retard the progress of Napoleon. But when the defection of the whole army rendered all resistance impossible, Rapp also went over to Napoleon, who made him commander of the army of the Rhine, which occupied the lines on the Lauter and from Weissenburg, and extended along the Rhine as far as Hüningen. After several battles with an enemy of superior force, Rapp retreated under the cannons of Strasburg. When Louis XVIII returned a second time to Paris, Rapp retained the command of the fifth division, granted him by Napoleon, till September of the same year, when the army was disbanded. He retired to his estates, but soon returned to Paris. When the news of Napoleon's death arrived, Rapp was about the person of the king. The information moved him so strongly, that he expressed his feelings aloud:—"I am not ungrateful," he said, and immediately withdrew. The king, informed of his conduct, sent for him, and thus addressed him:—"Rapp, I know that you are greatly affected at this information: this does honor to your heart, and I only love and esteem you the more for it." Rapp died in 1821, being at the time lieutenant-general of the cavalry. After his death appeared the interesting *Mémoires du Général Rapp, écrits par Lui-même* (Paris, 1823). (See *Mém. des Contemporains*, 1st No.; these are genuine; a former edition was declared spurious, by the widow of the general.)

Rapp,* George and Frederic, the latter the adoptive son of the former, founders of the society of Harmony, in the town of Economy, Beaver county, Pennsylvania. Both emigrated with the elder members of the society, in 1804, from Würtemberg to the U. States. They first settled on Connoquenessing creek, twenty-five miles north of Pittsburg. Here they labored as pioneers in the wilderness. They introduced community of property, taking the second chapter of the Acts of the Apostles as their guide. The town, founded Feb. 15, 1805, was called *Harmony*, and advanced rapidly. Agricultural and manufactured articles were soon produced in sufficient quantities for sale by the flourishing colony. In 1814, the colony purchased in Indiana, at that time a territory, 27,000 acres on the Wabash, and, in 1815, the whole colony had removed thither. This town was called *New Harmony*, and prospered much more rapidly than the former, as the society had already accumulated wealth in its former residence. The bad administration of justice, however, again caused them to remove. New Harmony was sold in 1824, and Economy, eighteen miles below Pittsburg, settled. In the summer of 1831, Economy contained about 200 houses, and about 900 members. They are more devoted to manufactures than to agriculture, yet the lands are cultivated in the best manner. They manufacture annually about 100,000 pounds of wool, and 300 bales of cotton. They make broadcloths, flannels, carpets, and even silk handkerchiefs (they having lately begun to rear silkworms; in 1831, they had about 100 pounds of silk which they had prepared). Horses, cattle, sheep and swine are reared in great numbers. Wheat, barley, rye, oats, flax, clover, and garden fruits, are raised in abundance, and even wine is made. The surplus produce is sold for their joint benefit. Any one who wishes to join them, lives with them for six months; after which he is voted for. If he is admitted, he throws his whole fortune into the joint stock; and if he should leave the society, it is restored to him, but without interest, or share in the profits. The novice promises obedience to the laws and the elders, and never to make any claims for services rendered; whereupon the society promises to furnish him every thing necessary in health and sickness. The punishments are reprimands, exclusion from the church for some weeks, during which time no one has intercourse with the offender, and expulsion. The professed object of their religious system is to learn and follow the precepts of Jesus. Their music, instrumental and vocal, is excellent. Members of both sexes are admitted, but they do not marry. The wealth of the society is supposed to be very great. Mr. George Rapp is the patriarch. Feb. 1, 1832, two hundred and seventeen members made known their secession, and declared that all the authority granted by them to George Rapp had ceased.

Rappahannock; a river of Virginia, which rises in the Blue ridge, and runs east-south-east about 180 miles, and flows into Chesapeake bay, twenty-five miles south of the Potomac. It passes the towns of Falmouth, Fredericsburg, Port Royal and Leeds, and is navigable to Fredericsburg, 110 miles, for vessels of 130 or 140 tons.

Raritan; a river of New Jersey, formed by two branches which unite twenty miles above New Brunswick. It becomes navigable two miles above that city, at a place called *Brunswick Landing*. It passes Amboy, and then widens into Raritan bay, which is immediately connected with the ocean.

Ras; Arabian for *head*, and prefixed to names of promontories or capes.

Rascians, or **Raitzen**; a Sclavonic tribe, which formerly inhabited Servia and Illyria, but at present is spread through Sclavonia, Lower Hungary, Transylvania,

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* This article has been inserted, contrary to our rule of not giving notices of living citizens of the U. States, with a view to furnish some information respecting the settlement of Economy, for which we had not the materials at the time of preparing the articles in E.

Moldavia and Walachia. They profess the Greek faith, but many of them have joined the Catholic church.

Rash (*exanthema*); an eruption of the skin. It consists of red patches on the skin, diffused irregularly over the body. Portions of the cuticle are often elevated in a rash, but the elevations are not acuminated. The eruption is usually accompanied with a general disorder of the constitution, and terminates in a few days by cuticular exfoliations.

Rask, Erasmus Christian, professor of literary history, and librarian in the university of Copenhagen, a learned linguist, was the son of a peasant, and was born near Odensee, in the island of Funen, in 1784. He studied at Copenhagen, afterwards lived several years in Iceland, and made scientific tours through Sweden, Finland and Russia. In 1808, he received an appointment in the university library at Copenhagen, and made himself familiar with the oldest sources of northern history. His Introduction to a Knowledge of the Icelandic or Old Language of the North (Copenhagen, 1811); his *Angelsaxsisk Sproglære* (Anglo-Saxon Grammar, Stockholm, 1817, translated into English by Thorpe); his Examination into the Origin of the Icelandic Language Copenhagen, 1818), which received the prize from the Danish society of science; his edition of Björn Haldorsen's Icelandic Dictionary; and his valuable contributions to other works on the ancient northern literature,—are proofs of his learning and industry. In 1819, Rask undertook a tour through Russia to Persia, and thence sailed (1820) for Bombay, and visited Ceylon, for the purpose of prosecuting his researches in comparative philology. While in the East, he collected 113 old and rare Oriental manuscripts for the university of Copenhagen: among them were thirty-three relative to the ancient Persian literature, and particularly to the Zendavesta, several of which had escaped the notice of Anquetil du Perron; nineteen of them in the Zend, and the others in the Pehlvi language: twenty-four of the manuscripts belong to a hitherto almost unknown portion of Indian literature. Since his return to Copenhagen, professor Rask has published a Spanish Grammar, a Frisian Grammar, a Danish Grammar for the use of Englishmen (1830), and, very recently, an Arabic Grammar and Text-Book.

Raspberry. The common cultivated raspberry (*rubus idæus*) has a woody root, from which arise several upright stems, attaining the height of three or four feet, and rough with numerous fine prickles: the inferior leaves are pinnate, composed of five oval acute toothed leaflets, green above, and whitish and downy beneath; the superior ones are ternate; the flowers are white, and rather small, supported on slender branching peduncles, which arise from the axils of the superior leaves: they are succeeded by a well-known fruit, composed of numerous rounded succulent grains, and of a delicious flavor. It grows wild in rocky places, throughout the colder parts of the northern hemisphere. Several varieties are cultivated, differing in the size and color of the fruit, either red, flesh-colored, or yellow. One variety bears twice a year. A light soil is best suited to the culture of the raspberry, and an eastern or western exposure, slightly shaded. It is generally propagated by suckers, which the old roots give out in profusion; and the time of planting continues from November till the middle of March. A distance of three feet in every direction, should be left round the stocks, and no more suckers should be suffered to remain than are intended to bear the following year, unless young plants are wanted; and if very large fruit is the object, no suckers should be left. On the other hand, when the strongest suckers are wanted, the fruit-bearing shoots should be cut down. Raspberries have a grateful subacid taste, and, unlike most fruits, do not undergo the acetous fermentation in the stomach; their perfume is very delightful. They are much used in cookery and confectionary, as well as in desserts: with sugar they are made into jam and jelly, and also into cakes. The juice, mixed with a certain portion of sugar and brandy, constitutes the liqueur called *raspberry brandy;* and it is sometimes manufactured into wine. In some parts of Europe, a white vinegar is prepared by infusion, which is converted into a sirup by adding the requisite quantity of sugar.—A second species of raspberry (*R. strigosus*), bearing a small red fruit, grows wild in most of the northern parts of the U. States. The fruit has an agreeable flavor, and frequently makes its appearance in our markets. It is probably susceptible of as much improvement by cultivation as the preceding species.—The genus *rubus* belongs to the natural order *rosaceæ*, and is numerous in the U. States, comprehending the different sorts of blackberries and dewberries, as they are termed. One of them, the flowering raspberry (*R. odoratus*), is a highly ornamental shrub, distinguished by its very large bright red flowers, and is frequently cultivated in gardens, both in Europe and America: it grows wild in Canada, the Northern States, and along the whole range of the Alleghany mountains. Two other species, growing west of the Rocky mountains, are equally remarkable for the size and beauty of their flowers.

Rastadt; a town with 4200 inhabitants, in the grand-duchy of Baden, on the river Murg, about nine miles from Carlsruhe. The beautiful castle Favorite was, until 1771, the residence of the margraves of Baden-Baden. At the congress of Rastadt, 1713, prince Eugene (for Austria) and marshal Villars (for France) began the negotiations which put an end to the Bavarian war of succession by the peace of Rastadt, March 6, 1714. The second congress at Rastadt was opened Dec. 9, 1797, for the purpose of concluding peace between France and Germany, and was dissolved by the emperor of Germany, April 7, 1799. (See *Congress*.) The French ministers Roberjot, Bonnier, and Jean de Bry, set out to return, April 28, 1799, but, about 200 paces from the suburb, were attacked by a troop of hussars. Roberjot and Bonnier were killed, their papers taken, and their persons plundered; Jean de Bry and the secretary Rosenstiel escaped to Rastadt. The diet at Ratisbon ordered an inquiry into the affair, which it left to the emperor. This, after being prosecuted for some time with spirit, was at length dropped. It is now generally believed that, though the hussars had orders to take the papers from these ministers, the killing was probably caused by their wish to plunder.

Rat. The common brown or Norway rat, now so extensively diffused over this country, is not indigenous to our soil, but was introduced from Europe, which received it from Asia in the eighteenth century (as late as the year 1750). There are few parts of the world, now visited by navigators, where this animal has not been introduced; and the immediate consequence of its introduction has been, that all the native rats have been destroyed, or obliged to withdraw beyond the reach of this subtle and implacable enemy. Prior to the year above mentioned, this rat, now so notorious for its ravages, was almost, if not wholly, unknown in Europe. It was conveyed to England about the period above mentioned, in the timber-ships from Norway; and hence it has received one of its common names. Many years subsequently it was brought to this country in European ships, and has been gradually propagated from the seaports over the greater part of the continent. The brown rat takes up its residence about wharfs, store-houses, cellars, granaries, &c., and destroys the common black rat and mouse, or entirely expels them from the vicinities it frequents. To chickens, rabbits, young pigeons, ducks, and various other domestic animals, it is equally destructive, when urged by hunger and opportunity. Eggs are also a very favorite article of food with this species, and are sought with great avidity; in fact, every thing that is edible falls a prey to their voracity, and can scarcely be secured from their persevering and audacious inroads. In the country, they take up their abodes according to convenience and the abundance of provision, infesting especially mills, barns and out-houses, or residing in holes along the banks of races or other water-courses. The brown rat swims with great facility, and dives with vigor, remaining under water for a considerable time, and swimming thus to some distance. When attacked, and not allowed an opportunity of escaping, he becomes a dangerous antagonist, leaping at his enemy, and inflicting severe and dangerous wounds with his teeth. The most eager cat becomes immediately intimidated in the presence of one of these rats thus penned up, and is very willing to escape the dangers of an encounter. The brown rat is amazingly prolific, and, but for its numerous enemies, and its own rapacious disposition, would become an intolerable pest. Happily for the world, in addition to man, to the weazel, cat, some species of dog, &c., rats frequently find destructive enemies in each other, both in the adult and young state. The strongest of the species prey upon the weaker, and are the most merciless destroyers of their own kind.* The weazel and the terrier are the most efficient rat-killers, as the first can pursue the enemy to his most secret retreat, and the second derives, from his superior strength and activity, a very decided advantage in the contest. The cat, though in general a very useful auxiliary in lessening the number of this species, is very liable both to be foiled and worsted in her attempts. As these rats bring forth from twelve to eighteen at a litter, we have good reason to rejoice that so many animals have an instinctive animosity against so noxious a marauder. The cunning of these rats is not less than their impudence; it is almost impossible to take them in traps, after one or two have been thus caught, as the rest avoid it with scrupulous care, however tempting may be the bait it contains. The surest way to remove them is by poison, which, however, they frequently detect and avoid. The powder of *nux vomica*, mixed with some Indian corn or oat-meal, and scented with oil of rhodium, is found very effectual in destroying them. Arsenic is very commonly used in the same way for this purpose; but the fatal accidents which frequently occur when this poison is kept about the house, in consequence of the label being removed or changed, and the arsenic administered to members of the family instead of some other medicine, render it a very objectionable resource. The brown rat measures about nine inches, and is of a light brown color, intermingled with ash and tawny. The color of the throat and belly is of a dirty white, inclining to gray. It has pale, flesh-colored, naked feet, with a tail of the same length as the body, and covered with small dusky scales, with short hairs thinly scattered between.—The *black rat* was much more common previous to the introduction of the brown rat than at present. It is now found only in situations to which the brown rat has not extended, and is almost as injurious and destructive, resembling it closely in manners and habits. It is of a deep iron-gray, and indeed nearly of a black color above, and of an ash color on the lower parts of its body. Its legs are nearly naked, and on its fore feet, instead of the rudimental thumb, it has a claw. The length, from the nose to the root of the tail, is seven inches; the tail itself is almost eight inches long. It has been a matter of dispute, whether this animal was received here from Europe, or was originally taken hence to that quarter of the world. Blumenbach, who has devoted much attention to the subject, states it as his opinion that the black rat was carried from Europe to America. Garcilaso de la Vega states, that it was first introduced into South America by the Europeans, about the year 1544, and Geraldus Cambrensis speaks of them in Europe previous to the discovery of America.

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* "It is a singular fact in the history of these animals, that the skins of such of them as have been devoured in their holes, have frequently been found curiously turned inside out, every part being completely inverted to the ends of the toes. How the operation is performed it would be difficult to ascertain; but it appears to be effected in some peculiar mode of eating out the contents" —Bewick, *Hist. of Quadrupeds*.

Ratafia. (See *Liqueur*.)

Ratan (*calamus*); a genus of palms, but widely differing in habit from the rest of that family, and, in this respect, somewhat resembling the grasses. The species have all perennial, long, round, solid, jointed, unbranching stems, extremely tough and pliable, often ascending among the branches of trees, but without prickles or tendrils. They grow in profusion along the banks of rivers in tropical Asia and the neighboring islands. All the species are very useful, and are applied to various purposes: the fruit and young stems of all furnish nutriment, and a drink is obtained from the liquid which flows from wounds made in the spadix. One species is even cultivated for its fruit, which is about the size of a walnut, and covered with scales. Certain species furnish cables, cords and withes of exceeding strength; others are split into strips for making the seats and backs of chairs, baskets, and other light and elegant articles of furniture; those which are larger and firmer, and whose joints are more distant, afford elegant walking-sticks; in short, the economical purposes to which the various species of ratans are applied, are very numerous, even in northern climates. A trade in ratans, to considerable extent, is carried on from several of the East India islands to China, which is the principal market for them.

Rate; the name of the classes into which ships of war are divided in the navy, according to their force and magnitude: thus the *first rate* comprehends all ships of 100 guns and upwards; *second rate* includes all ships carrying from 90 to 98 guns, upon three decks; *third rate* consists of ships from 64 to 80 cannon; *fourth rates* consist of ships from 50 to 60 guns, upon two decks and the quarter-deck. All vessels of war under the fourth rate are usually comprehended under the general names of *frigates*, and never appear in the line of battle. They are divided into two rates, viz. *fifth rates*, mounting from 32 to 40 or 44 guns; and *sixth rates*, of from 20 to 30 guns.

Ratel (*ratelus mellivorus*); a species of animals allied to the gluttons, inhabiting the southern part of Africa. It lives on honey, which it procures in great quantities, the bees in that part of the country making their nests in burrows in the ground, which have been deserted by some animal. Sparrman gives an extraordinary and almost incredible account of its sagacity, viz. that it will ascend the highest part of the desert it inhabits to look about, placing one foot above its eyes, to prevent their being dazzled by the sun. The reason he assigns for its choosing this elevated situation is, that it may the better hear and see the honey-guide cuckoo, which lives on bees, and serves as a guide to their hives. From the toughness of its hide and the stiffness of its hair, it is admirably defended, not only from the stings of bees, but also from the attacks of more formidable adversaries. The ratel has a blunt nose; no external ears; a rough tongue; short legs, furnished with long and straight claws, deeply grooved beneath: the crown of its head and upper part of its body is gray; the rest is black, except that from each ear a dusky line extends to the tail. The length of the body is forty inches; of the tail, twelve; of the anterior claws, an inch and three quarters.

Ration, in the army; a portion of ammunition, bread, drink and forage, distributed to each soldier for his daily subsistence, &c. The officers have several rations, according to their quality and the number of attendants they are obliged to keep.

Rationalism, in the philosophy of religion; opposed to *supernaturalism*. Both words are chiefly used in Germany. (See *Supernaturalism.*)

Ratisbon (in German, *Regensburg*), one of the most ancient cities in Germany, built by the Romans, and called *Reginum*, or *Castra Regina*, was, as early as the second century, a commercial place, as appears from an inscription on a temple brought to light by K. T. Gemeiner. Under the Agilolfingians, it was the capital of Bavaria. After the deposition of this dynasty, it was under the immediate protection of the German king. It underwent several changes, and, in 1663, was made the permanent seat of the diet of the German empire, and so continued until the dissolution of the same. In 1803, the city and the bishopric of the same name were given to the elector of Mayence, who was now styled "arch-chancellor of the empire." The city and bishopric were made a principality, and the former see of Mayence transferred to Ratisbon. When the prince-primate was made grand-duke of Frankfort by Napoleon (in 1810), the principality was given to Bavaria. Ratisbon has, at present, 26,100 inhabitants (mostly Lutherans), and is the chief place of the circle of the Regen. The city lies in a fertile valley, at the confluence of the Danube and the Regen. A bridge 1091 feet long (built in 1135—46) leads over the Danube. The buildings are old; the streets crooked, but clean. The city hall, in which the diet used to assemble, with the library, the cathedral, and several other public buildings, deserve mention. There are several good schools and learned societies. The manufactures consist chiefly of pottery, bleached wax, soap, beer and brandy. Yarn is here dyed Turkish red. There is also considerable commerce. Near the city is the monument, which the late archbishop and prince-primate, Charles von Dalberg, erected in 1817 to the memory of Kepler, who died here, Nov. 5, 1630. Respecting the battle of five days (from April 19 to 24, in 1809), near and in Ratisbon, see *Eckmühl.* On the 23d, the city lost 134 houses by fire, and the loss of property by pillage was estimated at 1,500,000 florins. Lat. 49° 0′ 53″ N.; and lon. 10° 6′ 23″ E.

Ratlines; small lines which traverse the shrouds of a ship horizontally, at regular distances, from the deck upwards, forming a variety of ladders whereby to climb or to descend from any of the mast heads.

Rattan. (See *Ratan.*)

Rattany or Ratanhia Root; the root of the *krameria triandra*, a plant belonging to the order *polygaleæ*, and growing wild in the mountains of Peru and Chili. It is a powerful styptic, and various marvellous properties have been attributed to it. The plant has lately been brought into Europe, and probably will succeed in temperate climates. It is not yet in the English catalogues of introduced plants.

Rattlesnake (*crotalus*); a genus of American serpents, celebrated for the danger which accompanies their bite, and for the peculiar appendages to their tail. The scientific name *crotalus* is derived from κροταλον, a bell, rattle, or cymbal. The head is broad, triangular, and generally flat in its entire extent. The eyes are very brilliant, and provided with a nictitating membrane; the mouth very large, the tongue forked at its extremity. The body is robust, elongated, cylindrical, covered above with carinated scales. The tail is short, cylindrical, and somewhat thick. The number of the little bells which terminate it, increases with age, an additional one being formed at every casting of the skin. These bells are truncated, quadrangular pyramids, received within each other in such a manner that only a third part of each is visible, the tip of every bone running within two of the bones below it. Thus they are united by a kind of ball and socket joint, and move with a rattling sound whenever the animal agitates its tail. The noise resembles that made by rumpled parchment, or by two quills of a goose rubbed smartly against each other. The poison fangs are traversed by a canal for the emission of the poison. These fangs, when not used, remain concealed in a fold of the gum; when the animal bites, the fangs are raised. They are two in number, one at each end of the upper jaw. The *crotali* have a fœtid odor; hogs feed upon them, but most animals, especially horses and dogs, dread them. Their principal food is birds and squirrels. They also devour rats, hares, and small reptiles. Their glance has been said to have the power of fascinating their prey so as to make it drop into their mouths; it is probable, however, that they only seize it during the terror and confusion which the sight of them occasions. They creep slowly, and do not bite but when provoked, or for the purpose of destroying their prey; and they sound their rattles some time before attacking their assailants. When seized by the head, they cannot, like other reptiles, raise their tails and twist themselves round the arm, nor make use of their strength to disengage themselves. They usually rest twisted in a spiral form in the customary paths of wild animals, particularly in those which conduct to the water. The remedies employed against the bite of the rattlesnake, are suction and ligatures, caustics and internal medicines. All the species of *crotali* whose country is well known, are confined to America; and the individuals of this genus have diminished in proportion to the increase of population. Bartram says, that he has seen some rattlesnakes as thick as a man's thigh, and more than six feet long. When the winter is rigorous, the *crotali* pass some time, in a lethargic state, near the sources of rivers, in covert places, where the frost cannot reach them. They bury themselves thus, before the autumnal equinox, after they have changed their skin, and do not emerge until after the vernal equinox. Many of them are often found together in the same hole. Till the month of July, their bite is comparatively harmless. At Cayenne, and in the hot latitudes, they are in constant activity all the year. They are viviparous, and can live a long time. Some have been mentioned as having forty or fifty pieces in their rattles, and being from eight to ten feet in length. They have great tenacity of life. The *crotalus horridus*, Lin. (banded rattlesnake), is a native of Mexico and South America, and is generally from four to six feet long. The *crotalus durissus* (striped rattlesnake of Shaw) inhabits the temperate countries of North America as far as the forty-fifth degree of latitude; it traverses with ease rivers and lakes by swimming, swelling out its body like a bladder. *Crotalus miliarius* (miliary rattlesnake) is an inhabitant of Carolina, is of small size, and not easily perceived; it is fond of remaining coiled up on the tops of the roots of large trees, or on the fallen trunks; lives on frogs, insects, worms, &c.

Rauch, Christian, professor of sculpture in the academy of fine arts in Berlin, one of the first German sculptors now living, was born in 1777, in Waldeck. After having spent some time in Berlin, he went, in 1805, to Rome. In 1811, the king of Prussia invited him to Berlin to execute a mausoleum for the late queen in Charlottenburg. In 1814, this monument was erected, and forms one of the finest works of modern art. In 1815, he was charged by the king to execute the statues of Scharnhorst and Bülow, which are now standing in Berlin, nearly opposite the king's palace. He also made a model of a bronze statue of Blücher for the city of Breslau. Another statue of Blücher, made by him, eleven feet high, on a pedestal sixteen feet high, entirely of bronze, stands in Berlin. He has also produced many other fine works.—See Sketches of the principal Works of Chr. Rauch, with Illustrations, by Dr. G. F. Waagen (Berlin, 1827, folio). Rauch is distinguished for accuracy of execution.

Raucourt, Sophia, a French actress of eminence, whose proper name was Saucerote, was born at Nancy, in 1756, and was the daughter of a theatrical performer. She first appeared on the stage at Paris, in 1772, in the character of Dido, and soon acquired great professional reputation, which she enjoyed till 1776, when she suddenly fled from France to avoid her creditors. Having returned to the Paris stage in 1779, she continued to be one of its principal ornaments, till her imprisonment during the reign of terror, in 1793. She was discharged after six months' confinement, but experienced other persecutions till she obtained the protection of Napoleon. Madame Raucourt died January 15, 1815.

Raumer, Frederic Louis George von; was born at Wörlitz, in Dessau, 1781. At the age of seventeen years, he studied at Halle and afterwards at Göttingen. In 1801, he was appointed a referendary under the Prussian government, and afterwards discharged various offices, in which he attracted the particular attention of the chancellor von Hardenberg (q. v.); but his fondness for the study of history induced him to give up the most brilliant prospects for a professorship in the university of Breslau, in 1811. In 1815 and 1817, he travelled in Germany, Switzerland and Italy, and collected important materials for his history of the Hohenstaufen (q. v.). In 1819, he was appointed professor of politics in Berlin; but, since the death of Rühs, he has chiefly lectured on history. Among his many works are the following:—CCI *Emendationes ad Tabulas genealogicas Arabum et Turcorum* (Heidelberg, 1811); Manual of important Passages from the Latin Historians of the Middle Ages (Bresl., 1813); Lectures on Ancient History (Leipsic, 1821, 2 vols.); History of the Hohenstaufen and their Time (Leipsic, 1823—25, 6 vols., with engravings)—all in German, except that whose title is given in Latin. He has also written a great number of reviews in the Heidelberg and Vienna annuals, and the *Hermes*. His History of the Prussian Government from 1808 to 1813, at the conclusion of Manso's (q. v.) History of the Prussian State since 1763, in German, is valuable. He edits the Historical Pocket-Book, an annual, the first volume of which appeared in 1830. In 1831, he published Letters from Paris (France, 2 vols.).

Raupach, Ernest Benjamin Solomon, one of the most popular dramatists now living in Germany, was born in 1784, in Silesia. In 1801, he entered the university of Halle. In 1804, he went to St. Petersburg to join his brother. In 1816, he was appointed professor in the university of that capital, and taught German literature and history. In 1821, the government ordered an inquiry into his conduct and that of several of his colleagues; as the event was uncertain, he left Russia in 1822. Of late he has lived chiefly in Berlin, where many of his dramatic works have been performed with considerable applause. He has composed comedies as well as tragedies. Several other small productions of his have appeared in souvenirs, &c. He has also written Letters from Italy.

Ravaillac, Francis, the murderer of Henry IV of France, born at Angoulême in 1578, pursued the practice of law, and, at the same time, instructed the children of his native place. His naturally gloomy disposition degenerated into a wild fanaticism, when he began to meddle in religious controversies, which, at that time, continued to distract his unhappy country. Filled with hatred of the new doctrines, he became accustomed to consider the good and humane Henry as the arch-enemy of the church, to destroy whom would be a meritorious work. May 14, 1610, he succeeded in his purpose. (See *Henry IV.*) He was seized, condemned to death, and underwent his sentence on the 27th of May. He died under the severest torments of more than an hour's duration, which he endured with tranquillity, as he had done the rack, and without betraying any especial repentance, or naming any accomplices.

Ravelin, in fortification, was anciently a flat bastion, placed in the middle of a curtain, but is now a detached work, composed only of two faces, which make a salient angle, and raised before the curtain on the counterscarp of the place. A ravelin is a triangular work, resembling the point of a bastion with the flanks cut off.

Raven. (See *Crow.*)

Ravenna; one of the oldest towns in Italy, in the Romagna (States of the Church), capital of a delegation of the same name, forty miles east of Bologna population 16,000. Ravenna was formerly the residence of the Western Roman emperors, and, after the fall of the Western empire, of the Gothic kings, and still later of the exarchs. (See *Exarchate.*) In 752, it was captured by the Lombards, from whom it was taken by the Frankish king Pepin, and bestowed, with the exarchate, on the pope. From 1440 to 1508, it was in the hands of the Venetians, from whom it was taken by the league of Cambray. Since that time it has belonged to the papal see. It is surrounded with marshes, which, however, have in modern times been partly drained. It had formerly a fine port on the Adriatic, which has been filled up by the accumulation of mud; and the city, though still occupying its former site, is now three or four miles from the sea. In the neighborhood, towards Forli (q. v.), is the field of battle, on which Gaston de Foix gained a victory over the Spanish and papal troops (1512), and fell. The bones of the emperors Honorius, Constantine, and Valens III, of Galla Placidia, daughter of Theodosius the Great, and of Dante, lie in Ravenna.

Rawdon, Lord. (See *Hastings, Francis.*)

Ray. The ray, in ichthyology, is a genus of fishes, of which the generic character is that it has fine oblique spiracles on each side, placed beneath the neck the head is small, pointed, and not distinct from the body; the mouth is beneath, transverse, toothed; the body is broad, thin and flat. The individuals of this genus are all inhabitants of the sea only: they keep at the bottom, and in winter cover themselves with sand and mud. They feed on testaceous animals, fish, or any animal substances which they may happen to meet with. They grow to a large size, sometimes exceeding two hundred pounds in weight. The females are the larger, and produce their young alive, only one at a time, which are enclosed in a black, quadrangular, horny shell. The eyes are half covered with a thin membrane, oblong, placed in the upper part of the head; above these, in the place of nostrils, is a broad groove, divided by a reticulate membrane, consisting of crested folds, and closed with a valve. Behind this groove are two small semilunar orifices. The tongue is very broad, short and smooth. The ventral fins are covered with a thick skin, and at the base are connected with the anal. The flesh is generally eatable; the liver is large, and produces no small quantity of pure oil. This genus includes the electric ray or torpedo, and skates, the sting-ray and thornbacks, and other species.

Ray. (See *Optics.*)

Ray, John, an English naturalist, born in 1628, was the son of a blacksmith, and received his education at Cambridge, where he obtained a fellowship. After the restoration of Charles II, scrupling to sign the declaration against the solemn league and covenant, he resigned his fellowship, and devoted himself to the cultivation of science and literature. In 1667, he was chosen a fellow of the royal society, to whose Transactions he was a frequent contributor. In 1670, he published a Catalogue of English Plants, which was followed by a Collection of English Proverbs, and (1673) an account of a continental tour. He particularly distinguished himself by his improvements in the classification of plants and animals, in his *Methodus Plantarum Nova* (8vo.); *Historia Plantarum* (3 vols. folio); *Synopsis Methodica Stirpium* (8vo.); *Synopsis Methodica Animalium Quadrupedum;* and a *Sylloge Stirpium Europearum extra Britannium crescentium;* besides which, he published Willughby's Ornithology, and History of Fishes. He was also the author of a popular work, entitled, The Wisdom of God manifested in the Works of Creation (8vo.); and of Miscellaneous Discourses concerning the Dissolution and Changes of the World (8vo.). His death took place January 17, 1705. The Philosophical Letters of Ray, and those of his correspondents, were published in 1718, by Dr. W. Derham.

Raynal, Guillaume Thomas François, a French writer, born in 1713, at an early age entered the society of the Jesuits. He distinguished himself by his eloquence as a preacher, but, in 1748, quitted the society and went to Paris. Here he gained a subsistence by his pen; but his first works (History of the English Parliament, and History of the Stadtholderate) attracted little notice. His *Histoire Philosophique des Établissemens et du Commerce des Européens dans les deux Indes* (1770), gained him reputation, although he was himself so sensible of its errors and defects, that he took a journey through France, England and Holland to obtain information; and the new edition (1781) was much improved. His free expressions on arbitrary power, priestcraft and superstition, caused his banishment by the parliament, and the condemnation of his book by the Sorbonne. After residing in Germany and Switzerland, he finally received permission to return, and arrived in Paris in 1788. In the early part of the revolution, Raynal, who was not favorably disposed to the democratic principles of the day, was in a critical situation; but, after the fall of the Jacobins, his condition was somewhat improved. He died in 1796. The *Histoire Philosophique* (new edition, Paris, 1820) has been the most celebrated of his works, but is now little esteemed. Raynal also wrote *Révolution des Colonies Anglaises de l'Amérique Septentrionale* (1781).

Raynouard, François Juste Marie, a French poet, born in Provence in 1761, was at first an advocate, and sat in the legislative assembly. He first gained reputation by his *Socrate dans le Temple d'Aglaure*, a poem, which obtained a prize from the institute. His principal work is the *Templiers*, a tragedy (1805); the historical matter appended to which, concerning the trial of the Templars, is valuable. In 1807, Raynouard became a member of the institute, and, in 1817, succeeded Suard as perpetual secretary of the academy. In 1816, he published a selection from the poetry of the Troubadours (3 vols.), with which are connected the elements of the *Lingua Romana*, and a grammar of the language of the Troubadours.

Razee. A ship of war cut down to a smaller size.

Razors. (See *Cutlery.*)

Re, or **Ri**; the Egyptian name for the sun, considered as a divinity. (See *Hieroglyphics*, vol. vi, page 319.)

Reaction. (See *Mechanics*.)

Read, George, one of the signers of the Declaration of Independence, was born in Maryland, in the year 1734. His father, a planter, soon after the birth of his son, removed to Delaware. Young Read commenced the study of the law in his seventeenth year, in Philadelphia. In 1753, when but nineteen years old, he was admitted to the bar, on which occasion he performed an act of generosity towards the other children of the family, that deserves to be recorded. Being the eldest son, he was entitled, by the existing laws, to two shares of his father's estate; but he conceded all his rights to his brothers, assigning as his motive his belief, that in the education bestowed upon him he had received his proper portion. In the following year, he commenced the practice of his profession in the town of Newcastle. In 1763, he was appointed attorney-general of the three lower counties on the Delaware—an office which he retained until his election to congress in 1775. In 1765, Mr. Read was elected a representative to the general assembly of Delaware, and continued so for twelve years. In 1775, he was sent to the continental congress, and was annually re-elected a member during the whole revolutionary war. When the question of independence was agitated in congress, Mr. Read voted against it, because he deemed the time premature—an opinion which was entertained by members throughout the colonies. When, however, the time arrived for signing the instrument, Mr. Read affixed his name to it. In September, 1776, he was chosen president of the convention which formed the first constitution of the state of Delaware, and was offered the executive chair, but declined the honor. In 1779, ill health withdrew him from public employment; but, in 1782, he accepted the appointment of judge of the court of appeals in admiralty cases, and retained it during the existence of the court. In 1787, he represented Delaware in the convention which framed the constitution of the U. States. On its adoption, he was immediately elected a member of the senate. He retained his seat in that body until he was named, in 1793, chief-justice of the state. Whilst in this office he suddenly died, in 1798.

Réal, Pierre François, count, the son of a gamekeeper of Chatou, acted a conspicuous part in the course of the revolution. When that event took place, he was solicitor to the Châtelet at Paris. He attached himself to Danton, and, through his influence, was nominated public accuser to the revolutionary tribunal, which was established immediately after the 10th of August, and which was the model of the subsequent horrible tribunal of the same name. Against the party of Brissot he was exceedingly active; and with him originated the petition of the forty-eight sections for the expulsion of that party from the convention. (See *Girondists*.) He, however, endeavored to moderate the violence of the revolutionists; but, after the downfall of Danton, was imprisoned in the Luxembourg. On being liberated, after the execution of Robespierre, he exposed to the public the manner in which the prisons had been managed. He then, in conjunction with Mehée, established a paper bearing the title of *Journal des Patriotes de* 1789; but it was soon discontinued. At this epoch, he was appointed historiographer of the republic. For a considerable time, he was a pleader before the criminal tribunals, and, in this capacity, was retained in several important causes, particularly in that of Babœuf (q. v.), in which he displayed great firmness and talent. In 1798, his friends endeavored to procure his election as a deputy; but their efforts were frustrated by the director Merlin, who was hostile to him. When Merlin was turned out of office, Réal was appointed one of the government commissioners in the department of Paris. He took an effective part on the 18th of Brumaire, and was rewarded by being made a counsellor of state, attached to the department of justice.. In 1804, he detected the plots of Georges. He hoped to become minister of police. Fouché was, however, preferred to him; but he received a gift of a hundred thousand livres, and the cross of commander of the legion of honor. (For his concern in the death of the duke d'Enghien, see *Enghien*.) For some years, he was one of the counsellors of state of the ministry of police, and was charged with the superintendence of a district which comprised several departments. When Louis was restored, M. Réal ceased to be employed. He is said to have been one of those who planned the bringing back of Napoleon; and the emperor appointed him prefect of the police of Paris. M. Réal was among those who were banished by the ordinance of July, 1815. He retired first to the Netherlands, and then to the U. States, where he established an extensive manufactory of liqueurs. In 1818, he received permission to return to France, of which he has since taken advantage. M. Réal is the author of two or three pamphlets on events connected with the French revolution.

Real, opposed to the *ideal*, signifies, 1. the same as true, i. e. actually existing; 2 in philosophy, that which exists independently of our ideas or imagination. Hence *realism*, in philosophy, is the opposite of *idealism*, and is that philosophical system which conceives external things to exist independently of our conceptions of them. The external world is differently explained, and realism is divided into different systems, of which that of Spinoza is one of the most important. He supposes one, original reality, and teaches that all other things (*substances*) are but modifications of this one real being, which he conceives to be the Deity.—*Realism* becomes *materialism* (q. v.) if it considers matter, or physical substance, as the only original cause of things, and the soul itself as a material substance. Realism is found, also, in dualism. (See *Dualism*, and *Idealism.*)

Real. (See *Rial.*)

Real Injuria. (See *Injuria.*) *Real injuria*, in German law, is an injury done to the honor of a man by some act of violence, as beating, throwing out of doors, &c. The laws against duels in the 18th century imposed heavy punishments on such *injuriæ*, even confiscation of goods, &c. The more modern laws are milder.

Realgar. (See *Arsenic.*)

Realism. (See *Real.*)

Realist; one who adheres to realism. (See *Real.*)

Realists; a philosophical sect, opposed to the *nominalists*. (q. v.)

Rearguard. The office of the rear-guard of an army is to cover the retreat. It must be composed of infantry, with artillery, chasseurs or sharp-shooters, and of light cavalry; and one species of troops must aid the other, according to the nature of the ground. The cavalry is effectual in a level country; the infantry assists them if they are repulsed, and occupies the narrow passes; while the chasseurs, or sharp-shooters, keep the assailants in check.

Réaumur, René Antoine Ferchault de, a philosophic naturalist, was born, in 1683, at Rochelle, studied under the Jesuits at Poitiers, and afterwards went through a course of law at Bourges. But his tastes led him to the observation of nature; and, having made himself acquainted with the mathematical sciences, he went to Paris in 1703. His relative, the president Hénault, introduced him to the *savans* of the metropolis; and, in 1708, he was chosen a member of the academy of sciences, to which he had presented some memoirs on geometry. For nearly fifty years he continued to be one of its most active members, his labors embracing the arts, natural philosophy, and natural history He was appointed to assist in the descriptive accounts of arts and trades published by the academy; and, in executing his part of the undertaking, pointed out the way to various improvements, by the application of the principles of physics and natural history. He made important observations on the formation of pearls, and discovered in Languedoc mines of turquoise (q. v.); but among his most useful researches must be reckoned those of which he gave an account in his *Traité sur l'Art de convertir le Fer en Acier, et d'adoucir le Fer fondu* (1722). As a natural philosopher, he is principally celebrated for the invention of an improved thermometer, which he made known in 1731. (See *Thermometer.*) The fabrication of porcelain also occupied much of his attention, and led him to the discovery of a kind of enamel, called the *porcelain of Réaumur*, in 1739. His *Mémoires pour servir à l'Histoire des Insectes* place him in the first rank of modern naturalists. He died October 18, 1757.

Recife; a city of Brazil, capital of the province of Pernambuco, situated at the entrance of the Capibaribe into the Atlantic. The name of *Pernambuco* is applied to the two cities of Recife and Olinda, which are nearly three miles distant from each other. Population of Recife, 25,000; of Olinda, 4000; lat. 8° 4′ S.; lon. 34° 52′ W. Some parts of Recife are handsomely built, with broad but unpaved streets, and several neat squares. Among the public buildings are an episcopal palace, several handsome churches and convents, hospitals, a theatre, &c. The upper harbor (Mosqueiro) is formed by a chain of rocks running parallel with the city. The lower harbor (Poço) is capable of receiving ships of 400 tons burthen, but is exposed. The commerce, which is extensive, is rapidly increasing. The environs are fertile, and are adorned with many fine gardens and country-seats. The heat of the climate is tempered by sea-breezes, but changes of temperature are very sudden.

Recitative (Italian *recitativo*); a species of musical recitation, forming the medium between song and rhetorical declamation, and in which the composer and performer, rejecting the rigorous rules of time, endeavor to imitate the inflections, accents and emphasis of natural speech. But, though the rules of time and rhythm are not to be strictly observed, the recitative is written in time, and generally in $\frac{4}{4}$ time. In its approach to speech, therefore, the recitative is mostly syllabic song, i. e. each syllable has generally but one tone, and the tones themselves are less prolonged than in *song*, strictly so called. Hence the recitative has not a distinct, developed melody (q. v.), and a regular modulation (q. v.); it may, according to the meaning of the words, pass with comparative freedom through the various tones. On the other hand, the tones of the recitative are generally musical tones, of distinct height or depth (we say generally, because in the *recitativo parlante*, in the *opera buffa*, the tones become completely those of speech). When the recitative approaches still more to the strict song, in respect to time and melody, the *arioso* originates. In short, the recitative may be called a *declamation in musical tones*. Such a declamation requires a language between prose and lyric poetry. The recitative consists mostly of narrative and of poetical reflection; but it is capable of passing quickly from subject to subject, serves for dialogue, and to prepare important changes in great musical pieces. For this reason, it is introduced in cantatas, operas, and oratorios, between the songs, and is, as it were, the prose of music. As the music of recitative is free, so the words need not any artificial rhythm. The recitative includes the simple (by some also called the *parlante*) and the accompanied, or, more properly, the *obligato*. In the simple recitative, accompaniment also takes place, but it consists only in simple accords, which are given continuously, or interruptedly. In the *obligato* recitative, the instrumental accompaniment is of more importance. In the recitative, much is left to the singer, in respect to time, rhythm and melody, which requires in him much musical judgment and knowledge of harmony, in order to agree with the *obligato* accompaniment. The force and beauty of this species o composition depends, in a considerable degree, on the character of the language in which it is used. As that is more or less accented and melodious, the more or less natural and striking will be the recitative. The recitative seems to be much older than the song. Giac. Pesi, Cuccini, and Cl. Monteverde, are celebrated as having introduced the modern recitative, and Cesti and Giacomo Carissimi, masters of the papal chapel, in the first half of the seventeenth century, as improvers of the same. (See the article *Opera*.) Leon. da Vinci and Nic. Porpora are said to have first applied the *obligato* recitative. In the grand and expressive recitative, Gluck and Handel are the chief masters. In the modern opera, Mozart is distinguished, also, in this respect; for instance, in his recitative between Tamino and the priest, in the first act, and the great recitative in Don Juan, "Oh, heaven! what see I?" the latter is *obligato*.

Reckoning, in navigation. (See *Navigation*.)

Recognizance, in law, is an obligation of record which a man enters into before some court of record, or magistrate duly authorized, with particular conditions; as to appear at the assizes, or quarter-sessions, to keep the peace, &c.

Recoil, or **Rebound**; the starting backward of a fire-arm after an explosion. This term is particularly applicable to pieces of ordnance, which are always subject to a recoil, according to the sizes and the charges which they contain. To lessen the recoil of a gun, the platforms are generally made sloping towards the embrasure.

Reconnoitre (from the French) means, in military language, to inform one's self by ocular inspection of the situation of an enemy, or the nature of a piece of ground. It is one of the most important departments of the military art, and must precede every considerable movement. A penetrating eye, an acute ear, a calm and sagacious judgment, and much knowledge of military operations, are indispensable for reconnoitring with advantage. The commanding general always reconnoitres himself, but he must of course rely much on his aids-de-camp, as he cannot go every where himself; nor is he allowed to expose himself so much as is necessary, on some occasions, to obtain the requisite information. The choice of the aids-de-camp is therefore of the utmost importance. Reconnoitring not unfrequently brings on engagements, and considerable bodies of troops often march out to cover the reconnoitring party, and to make prisoners if possible, in order to obtain information from them. The bad success of Napoleon in his last campaigns has been partly ascribed, with much probability, by French writers themselves, to the unceasing activity of the Cossacks, which in many cases prevented the aids-de-camp of the French emperor from obtaining the information which they were commissioned to seek, and induced them to supply from their own invention the deficiences in their observations.

Recorder; a person whom the chief magistrates of any city or town corporate, having jurisdiction and a court of record within their precincts, associate with them for their better direction in legal proceedings. He is usually a person experienced in the law.

Rectangular Figures and **Solids** are those which have one or more right angles. With regard to solids, they are commonly said to be rectangular when their axes are perpendicular to the planes of their bases.

Red Bay. (See *Laurel.*)

Red Book of the Exchequer is an ancient record, in which are registered the names of those that held lands, *per baroniam*, in the time of king Henry II. It has also some things (as the number of hydes of land in many of the English counties) relating to the times before the conquest.

Red Bud. This name is often applied to the *cercis Canadensis*. (See *Judas Tree.*)

Red-Breast. (See *Redbreast*, p. 533.)

Red Cedar. (See *Juniper.*)

Red River, one of the principal branches of the Mississippi, rises at the base of a range of the Rocky mountains, called the Caous mountains, near Santa Fe, in Mexico. There are many streams rising in the same mountains, and flowing separately for three or four hundred miles, and at length uniting to form the Red river. The Blue river, and the False Washita, are the largest branches which it receives within the first four or five hundred miles of its course. Of the tract of country watered by these upper branches, and even of the waters themselves, our knowledge is very limited. The Pawnees are the principal inhabitants of that region. After the river enters Louisiana, the south bank of it is the boundary; for a long distance, between the U. States and the province of Texas. From both sides it continues, as it proceeds, to receive large tributaries. A great part of its course is through delightful prairies, of a rich, red soil, and covered with grass, and vines which bear delicious grapes. About a hundred miles above Natchitoches, commences what is called the *Raft*. This is a swampy expansion of the alluvion to the width of twenty or thirty miles. The river divides into a great number of channels, many of them shallow; and for ages these channels have been becoming clogged with a mass of fallen timber carried down from the upper parts of the river. The river finds channels between these extensive masses of timber, and sometimes under them; and there are places where the Raft covers the whole river, so that it can be crossed on horseback. Boats descend by passing round these places. They follow some stream above the Raft, which flows from the river into a distant lake, and then take the outlet by which the lake flows into the river below the Raft. About sixty or seventy miles of the river is thus obstructed. In many places a considerable soil has been formed on the Raft, upon which flourish weeds, flowering shrubs, and willows. This obstruction is of incalculable injury to the navigation of the river, and greatly retards the settlement of the rich and healthful country above it. There is probably no part of the U. States, where the unoccupied lands have higher claims, from soil, climate, intermixture of prairies and timbered lands, position, &c., than the country for nearly a thousand miles above the Raft. Steam boats would ascend to that distance, at moderate stages of the water, if the Raft were removed. The state of Louisiana, and also the general government, contemplate adopting means for its removal. Below the Raft, the river divides into many channels, and fills an immense number of bayous and lakes that lie parallel to it; and the breadth of its principal channel is much less below the Raft than above it. The valley of Red river is three or four miles wide, as far as the Kiamesia, about a thousand miles, following its meanders, from its mouth. It widens as it approaches the Mississippi, and is from six to eighteen miles wide for a great distance from its mouth. Of all the alluvions in the Mississippi valley, none is superior to this. Cotton is at present its staple production, but sugar cane has been introduced, and is expected to succeed better than in any other extensive tract in this valley. The climate and soil, as far as Natchitoches, 200 miles, seem admirably adapted to it. The alluvions of the lower branches of this river are also of similar quality. This valley spreads from west to east; its waters, therefore, never become cold, like those of the Mississippi; the winters are milder, and spring advances much earlier than at New Orleans; and the sugar cane will probably grow better in lat 31° on Red river and its branches, than in lat. 30° on the Mississippi. The cotton also of this region is the best in the U. States, excepting the sea-island. Its indigo and tobacco are the best in Louisiana. The whole length of this noble river is estimated at 2500 miles, following its meanders, and it enters the Mississippi in about 31° 15′ north latitude. It probably discharged its waters into the gulf of Mexico, at some former period, without uniting with the Mississippi; and the Atchafalaya now occupies its former channel. Much of the soil through which the Red river passes in its upper course, is of a reddish color, which is imparted to the waters, and gives the river its name.—*Red river* is also the name of a river in the northern part of North America, flowing into lake Winnipeg, and having a course of about 320 miles from the source of its principal branch in Red lake.

Red Sea, or **Arabian Gulf** (anciently *Arabicus Sinus*); an extensive gulf of the Indian ocean, dividing Arabia from the opposite coast of Africa, extending in a north-west direction from the straits of Babelmandel to the isthmus of Suez, where it approaches to within sixty miles of the Mediterranean; lat. 12° to 30° N. Its length is about 1400 miles; breadth, where greatest, about 200. This sea was anciently a greater channel of commerce than in modern times. Its navigation is rendered difficult by frequent obstructions from coral rocks either above or under water, by storms, and by the paucity of safe harbors. The principal harbors are Suez, at its head; Cosseir, Suakem and Massuah on the west side; Jidda, Jambo, Ghunfude, Loheia, Hodeida and Mocha on the east side. This part of the Indian ocean was called by the Greeks the Erythrean sea, according to some accounts, from a king Erythras, of whom, however, nothing is known. The Greek epithet ἐρυθραιος signifies also *red;* hence the appellation *Mare rubrum*, and in English, *Red sea*, not from any such color in its waters or sands.

Redbreast (*motacilla rubecula*). This little bird, although not a native of the U. States, is familiarly known to every child, from the numerous nursery stories, in which it plays a prominent part. The fame of this bird has arisen from its habit of seeking the aid of man during the winter season. During that inclement period of the year, it visits without dread the cottage of the peasant and the palace of the peer, tapping at the windows with its bill, as if to demand an asylum, and repays its hosts by its confidence, gathering the crumbs from the table, and warbling forth its thanks in the softest notes. The moment, however, the spring appears, this familiarity with its protectors ceases, and it again hastens to its native haunts. The redbreast builds its nest at the foot of some shrub or upon a tuft of grass; it is composed of dried leaves, mixed with hair and moss, and lined with feathers; the female lays from five to seven eggs. Sometimes it covers its nest with leaves, leaving a small passage for egress and regress. The food of the redbreast varies with the season; in the spring it is composed of worms and insects, but in autumn is principally fruits and seeds. Its delicacy in preparing a worm before partaking of it, is somewhat remarkable; it first seizes it by one end in its beak, and beats it on the ground till the inner part comes away; then, taking it in the same manner by the other end, it cleanses the outer part, which is the only portion it eats. From its general familiarity with mankind, it has received a *nom de caresse* in almost every nation in Europe; in England it is known as the *Robin Redbreast;* in Germany it is termed *Thomas Gierdet;* and in Norway, *Peter Ronsmad.*

Redemption, Equity of. (See *Equity of Redemption.*)

Redemptorists; an order founded by Liguori (q. v.), and restored in Austria in 1820. Beside the usual monastic vows, they bind themselves to labor for the propagation of the Catholic faith, by the cure of souls, and the education of youth.

Redondillas signified formerly a species of versification used in the south of Europe, consisting of a union of verses of four, six, and eight syllables, of which generally the first rhymed with the fourth, and the second with the third. At a later period, verses of six and eight syllables in general, in Spanish and Portuguese poetry, were called by this name, whether they made perfect rhymes or assonances only. These became common in the dramatic poetry of Spain.

Redoubt, in fortification; a small square work without any defence but in front, used in trenches, lines of circumvallation, contravallation, and approach, as also for the lodging of *corps de garde*, and to defend passages. They are usually figures of three, four, five, or six sides, encompassed with a ditch and a bank of earth, which consists of two parts, called *rampart* and *parapet.*

Redtop (*tricuspis quinquefida*). According to Pursh, this "is a most excellent grass. I have seen mountain meadows in Pennsylvania where they mow this grass twice a year, producing most excellent crops each time, without manure, or any other trouble than the mowing, lasting for the space of sixteen years, without the least decline in the crops, the soil at the same time being a very indifferent one." These remarks of Pursh seem very extraordinary to those who are accustomed to see this grass in other parts of the U. States. It is a tall, coarse, loose, flowering, dry, solitary grass, growing sparingly in a sandy soil, and is one of the last of our native grasses which we should select as suitable for fodder. The subject, however, is worthy of inquiry. The stem is erect, four or five feet high, and smooth; the panicle very large, expanding and flexuous: the spikelets are purplish, about six-flowered, and pedunculate: they resemble those of a *festuca* or fescue grass, but the inferior valve of the corolla has three points.

Reed. This term is usually applied indiscriminately to all tall, broad-leaved grasses which grow along the banks of streams, and even to other plants, with similar leaves, growing in such situations. Strictly speaking, it belongs to the genus *arundo*, and especially to the *A. phragmites*, the largest grass of northern climates, and one of the most universally diffused. This grass grows in marshes, often occupying exclusively certain tracts, and attains the height of eight or ten feet, with leaves one or two inches broad, and bears large, nodding, silky panicles. It flowers in July. It is used in many countries for various economical purposes, as for thatching, for protecting embankments or sea-dikes, for ceilings to cottages, &c., for screens or fences, and hotbed covers in gardens, for chair-bottoms, for weavers' combs, &c. The flowers afford a green dye, which is occasionally used for coloring woollens; and it is said that flour may be made from the dried roots, capable of being converted into a wholesome and nutritive bread.

Reed, Joseph, president of the state of Pennsylvania, was born in New Jersey, Aug. 27, 1741. In 1757, at the age of sixteen, he graduated at Princeton college. After studying law in that place, he repaired to England, where he prosecuted his studies until the disturbances produced in the colonies by the stamp act. On his return, he commenced the practice of his profession in Philadelphia, and met with distinguished success. He embarked actively in the political struggle of the day, on the side of independence, and, in 1774, was appointed one of the committee of correspondence of Philadelphia. He was in the same year, also, president of the first provincial convention held in Pennsylvania, and a delegate to the continental congress. On the formation of the army, he resigned a lucrative practice, and, at the solicitation of general Washington, repaired to the camp at Cambridge, where he was appointed aid-de-camp and secretary to the commander-in-chief. Throughout this campaign, though acting merely as a volunteer, he displayed great courage and military ability. In the beginning of 1776, he was made adjutant-general, and contributed materially, by his local knowledge, to the success of the affairs at Trenton and Princeton. During the week which elapsed between the two actions, he proposed to six Philadelphia gentlemen, members of the city troop, to accompany him on an excursion to obtain information. They advanced into the vicinity of Princeton, where the enemy was stationed, and surprised twelve British dragoons in a farm-house, who surrendered to this party of half their number, and were conducted by them to the American camp. At the end of the year, he resigned the office of adjutant-general. In 1777, within a period of less than two months, he was appointed chief-justice of Pennsylvania, and named by congress a brigadier-general. He declined both offices, however, but continued to serve as a volunteer until the close of the campaign. He was present at almost every engagement in the northern and eastern section of the Union; and, although at each of the battles of Brandywine, White Marsh and Monmouth, he had a horse killed under him, he had the good fortune never to receive a wound. In 1778, he was elected a member of congress, and signed the articles of confederation. About this time, the British commissioners, governor Johnstone, lord Carlisle and Mr. Eden, invested with power to treat concerning peace, arrived in America; the former of whom addressed private letters to Mr. Laurens, Mr. Dana, Mr. Morris and Mr. Reed, offering them various inducements to lend themselves to his views. He caused information to be secretly communicated to general Reed, that, if he would exert his abilities to promote a reconciliation, £10,000 sterling, and the most valuable office in the colonies, should be at his disposal. The answer of Reed was, "I am not worth purchasing; but, such as I am, the king of Great Britain is not rich enough to do it." In the same year, he was unanimously elected president of the supreme executive council of Pennsylvania, and continued in the office for the constitutional period of three years. At the time, there were violent parties in the state, and several serious commotions occurred, particularly a large armed insurrection in Philadelphia, which he suppressed, while he rescued a number of distinguished citizens from the most imminent danger of their lives, at the risk of his own, for which he received a vote of thanks from the legislature of the state. The revolt of the Pennsylvania line, also, in 1781, was suppressed through his instrumentality; and he was deputed, with general Potter, by the council of the state, with ample powers to redress the grievances complained of. To him, likewise, belongs the honor of having been the original detector and exposer of the character of Arnold, whom he brought to trial for mal-practices while in command at Philadelphia, notwithstanding a violent opposition on the floor of congress, and the exertions of a powerful party in Pennsylvania. Amidst the most difficult and trying scenes, the administration of Mr. Reed exhibited the most disinterested zeal and the greatest firmness and energy. His knowledge of law was very useful in a new and unsettled government; so that, although he found it in no small weakness and confusion, he left it, at the expiration of his term of office, in 1781, in as much tranquillity and stability as could be expected from the time and circumstances of the war. He then returned to his profession. In 1784, he again visited England, for the sake of his health; but his voyage was attended with but little good effect. On the 5th of March, in the following year, he died, in his forty-third year. In private life, he was accomplished in his manners, pure in his morals, fervent and faithful in his attachments.

Reed-Bird. (See *Rice-Bunting*.)

Reef; a certain portion of a sail comprehended between the top or bottom and a row of eyelet holes, generally parallel thereto. The intention of the reef is to reduce the surface of the sail in proportion to the increase of the wind; for which reason, there are several reefs parallel to each other in the superior sails: thus the top-sails of ships are generally furnished with three reefs, and sometimes four; and there are always three or four reefs parallel to the foot or bottom of those mainsails and fore-sails which are extended upon booms.—*Reef* also implies a chain of rocks lying near the surface of the water.

Reefing; the operation of reducing a sail by taking in one or more of the reefs.

Reel; a lively Scotch dance, generally written in common time of four crotchets in a bar, but sometimes in jig-time of six quavers.

Reeling. (See *Silk Manufacture*.)

Rees, Abraham; a dissenting clergyman, born in Wales, in 1743. Being intended for the ministry, he was placed at the Hoxton academy, where his progress was so rapid that, in his nineteenth year, he was appointed mathematical tutor to the institution, and, soon after, resident tutor, in which capacity he continued upwards of twenty-two years. In 1768, he became pastor to the Presbyterian congregation of St. Thomas's, Southwark (since removed to Stamford street), and continued in that situation till 1783, when he accepted an invitation to become minister of a congregation in the Old Jewry, whose spiritual concerns he superintended till his death. On the establishment of the dissenting seminary at Hackney, in 1786, doctor Rees was elected resident tutor in the natural sciences, which place he held till the dissolution of the academy, on the death of doctor Kippis. In 1776, he was applied to by the proprietors of Chambers's Cyclopædia to superintend an enlarged edition of that compilation, which, after nine years' incessant labor, he completed in four folio volumes. The success of this work led to a new undertaking, similar in its nature, but more comprehensive in its plan, projected and carried on by him, under the title of the New Cyclopædia (45 vols., 1802—20; republished Philadelphia, 47 vols.). Doctor Rees obtained his degree from the university of Edinburgh. He was also a fellow of the royal and Linnæan societies. His death took place June 9, 1825.

Reeve, Clara; born at Ipswich, in 1738, and died there in 1808. She possessed great learning and research, which she displayed in a translation of Barclay's Latin romance of Argenis, under the title of the Phœnix, or the History of Polyarchus and Argenis (1772); and the Progress of Romance. Her other works are the well-known tale of the Old English Baron; the Two Mentors; the Exile; the School for Widows; a Plan of Education; and Memoirs of Sir Roger de Clarendon (4 vols.).

Reeving, in the sea language; the putting a rope through a block. Hence to pull a rope out of a block is called *unreeving*.

Reference. (See *Arbitration*.)

Reflection. (See *Optics*.)

Reflectors. (See *Burning Mirrors.*)

Reform, Parliamentary. (*See the end of the concluding volume.*)

Reformation. The reformation of the church, in its head and members, had become the watchword of all the lovers of morality and religion as early as the fifteenth century. Christianity, which was intended to elevate mankind, and to make them happy, had been diverted more and more, in the hands of its priests, from its original design. The successful endeavors of the Roman bishops to extend their spiritual sway over all Christendom, to direct the actions of kings, and the improvement of society, undoubtedly contributed much, in the confusion of the ages which followed the irruption of the barbarians into Southern Europe, to soften the savage manners of the race which had trampled down the old world, with whatever remained of refinement. The Christian missionaries and monks sowed the seeds of milder manners in the German forests, and among the northern barbarians, and promoted the civilization of the converted nations. Many beneficial consequences resulted from the unity of faith and worship; from the dependence of all the Western churches on Rome; from that legislative supremacy over the nations which compelled the popes (q. v.) to adopt a settled policy, in the middle ages; and the Roman church may justly claim great merit in regard to the gradual formation of European society. But the church enjoyed her victory with so little moderation; her servants violated so openly, in their lives and doctrines, the spirit of their Divine Master, that the opposition to priestly despotism which had early arisen in the East, and had been transmitted through numerous sects to the secret societies of the middle ages, became quite active in the thirteenth century, and grew more violent in proportion as the papal power sought to exterminate it with fire and sword. The question, What is truly Christian, and conducive to human happiness, in the doctrines and usages of the Roman church? must often have been suggested to the minds of sincere clergymen and intelligent laymen. The arrogance of the priests exasperated the princes; the encroachments of the mendicant friars did injury to the secular ecclesiastics; and a thousand innocent victims of the inquisition called for vengeance. Still the authority of the pope over the public mind, even in the fourteenth century, was such as scarcely to suffer the murmurings of discontent to be heard. The writings of Wickliffe (q. v.) in England soon reached the continent, and aroused Huss (q. v.), with his Bohemian followers. But the fifteenth century was not ripe for a reform, and the papal party was strong enough to suppress every attempt towards improvement, as appears alike from the conduct of the princes and the people at the breaking out of the Hussite disturbances, and from the results of the councils of Constance and Bâsle. But, soon after, the views of scholars were enlarged by the study of the classics, revived by the emigration of a few learned Greeks; the means of information were vastly increased by the art of printing; materials for thinking were laid before the people by instructive works in the vulgar tongues, and by the new universities, of which seven were instituted in Germany alone, between 1451 and 1502; the number of learned men increased; and the intelligence for which the reformation was to open a way, began to act generally and powerfully. The reform, which the liberal divines had warmly advised, with little success, now waited but the call of a master spirit. Savonarola (q. v.) arose for this purpose in Florence; but the same funeral pile consumed him and his work together. Some monarchs also attempted something. Charles VIII of France caused the Sorbonne, in 1497, to declare it expedient that a council should be held every ten years for effecting reforms in the church, and that otherwise the bishops should assemble for that purpose. Maximilian I laid before the Roman court the strong remonstrances of the German princes, passed in the diets of 1500 and 1510. By the influence of France, an independent council was held at Pisa, in 1511, in spite of pope Julius II; but, although its few speakers conducted themselves with great boldness, it was soon overthrown by its own weakness, and by the decrees of the council in the Lateran, which was opposed to it in 1512, and which served, in the hands of the pope, to palliate his measures anew. In general, in all the plans that had been proposed for the reformation of the abuses of the church, on one side political ends had too often been intermixed, and on the other, in the heat of zeal against individual wrongs, the chief faults in the doctrine and discipline of the church, from which all the other evils originated, had been too much overlooked. Hence nothing took place but fruitless disputes and violent persecutions of the innovators, or futile political negotiations, in which the pope always prevailed in the end. The services of Reuchlin (q. v.), in the cultivation of the Greek language, and his victory over the opposers of learning in Cologne, had an important effect. The cultivated taste and the sound understanding which appeared in the writings of Erasmus, addressed to the most distinguished men in church and state, exerted a wider influence, and promoted both the cultivation of classical learning and the diffusion of liberal views on the subject of religion. Of still greater power over the mass of the people was the host of satires, epigrams, caustic allegories, and coarse jokes, at the expense of the church and the monks, from Renard (q. v.) the Fox to the more delicate raillery of these two scholars, who were not ardent nor bold enough to take a decisive step. Thus, by the concurrence of favorable circumstances, and by the progress of a new spirit struggling for light and freedom, the way of truth was gradually laid open. The centre of Europe, together with the north, which had long submitted with reluctance to Rome, was ready to countenance the boldest measures for shaking off the priestly yoke, of which the best and most reflecting men had become impatient. But no one anticipated the quarter whence the first blow would be struck. Frederic III, elector of Saxony, a wise prince, but a zealous Catholic, and a great collector of relics, only followed the example of other German princes in establishing a university at Wittenberg (1502), whither, among other learned men, he invited Martin Luther, an Augustine monk of Erfurt, to be professor of theology. This man—of a powerful mind, and distinguished more for his deep piety, and strong love of truth, than for extensive erudition—was well acquainted with the Holy Scriptures, and, by a visit to Rome, in 1510, on some business of his order, had also become acquainted with the corruptions of the papal court. Leo X (q. v.) was created pope in 1513. Little affected by the universal desire for reformation in the church, he seemed placed at its head merely to employ its revenues in the gratification of his princely tastes. Albert, elector of Mentz and archbishop of Magdeburg, a prince of a similar character, received from Leo, in 1516, permission to sell indulgences within his own jurisdiction, on condition of sharing the profits with the pope. In this traffic, Albert employed, among others, John Tetzel, a Dominican monk of Leipsic, experienced in the business, who went about from place to place, carrying on his trade with the most unblushing impudence, and extolling his certificates above the papal bulls (which required repentance), as unconditional promises of the forgiveness of sins, in time and eternity. The buyers were numerous, and the gain great; for the illiterate people still venerated highly their ancient superstitions; and the easy absolution from the deepest guilt, and relief from temporal penance and eternal punishment, for a few groschen, were alluring to the rude multitude. (See *Indulgence.*) When Tetzel commenced his traffic at Jüterbogk, in 1517, purchasers flocked to him from Wittenberg, which was in the neighborhood, and there, showing the certificates to their confessors, denied all necessity for new penances. Luther set his face against this abuse, first in his sermons (for he performed the duties of a preacher, as well as professor), and afterwards (in order to prepare the way for an academic disputation on the subject, according to long established usage) in ninety-five theses, or questions, which he affixed to the door of the great church, October 31, 1517. In these he declared himself warmly against the abuse of indulgences, displayed a lively zeal for the Holy Scriptures, and for the honor of the church and the pope, and concluded with a prayer for instruction. His sermons on indulgences were published in German, and, in a few weeks, were spread over all Germany. His theses were in Latin, and were soon spread through other Christian nations. Luther also urged his spiritual superiors and the pope to put a stop to the traffic of Tetzel, and to reform the corruptions of the church in general, in letters at once bold and respectful. With the exception of Scultetus, bishop of Brandenburg, no one made him a becoming answer. On the contrary, the most absurd libels, full of extravagant assertions of the power of the pope and his indulgences, were brought forward by Tetzel (in whose name Conrad Wimpina, professor of theology at Frankfort on the Oder, took up his pen), by the Augustine Sylvester Prierias, a courtier of the pope at Rome, and by Jacob Hogstraaten, the supreme inquisitor at Cologne, who had been rendered contemptible by his dispute with Reuchlin; but these, and the virulent Notes of Eckius (Eck) of Ingolstadt, against Luther, were too miserable to escape the ridicule of the well informed, and only drew attention to his bold enterprise. The severe replies, in which he exposed the weakness of these advocates for indulgences, and his *Resolutiones*, by which he illustrated his theses, gained new victories to the truth. A disputation which he maintained in an Augustine convent at Heidelberg, in 1518, on the merit of good works, and the use of the Aristotelian philosophy, gained him friends among the young theologians present, as Bucer, Brenz (Brentius), and others, who afterwards became celebrated as zealous advocates of reformation. The conferences of Luther with the papal legates, Cajetan, in 1518, at Augsburg, and Miltitz, in 1519, at Altenburg, in which those prelates, instead of bringing him to recant, as they were ordered, only showed their inability to support the Roman doctrines on the authority of the Bible; the scholastic discussion of Eck with Carlstadt and Luther, at Leipsic, in 1519, which lasted three weeks, and in which they warmly discussed the doctrines of free will, the authority of the pope, indulgences and purgatory, though they decided nothing, attracted a more general attention to the works of Luther, who almost every month sent forth new pamphlets and printed sermons. From the Pyrenees to the Vistula, from the gulf of Venice to the Belt, every thing by Luther or about him was eagerly read. The remarkable fulness and power of his style; his merciless humor; his acuteness and learning, daily increasing by his constant historical and exegetical studies; the irresistible force of his reasoning; and, above all, the adaptation of his doctrines to the wants of the age; the approbation of Erasmus, Pirkheimer, and other distinguished scholars; the public adherence of men like Melanchthon and Hutten; the contemporaneous and yet bolder opposition of Zuinglius and Œcolampadius, in Switzerland, to indulgences and the papacy (see *Reformed Church*),—made this man, who was hardly known before 1517, the champion of all enlightened men who lamented the degeneracy of the church of Christ; and as such he now spoke and acted with admirable courage. The respect for the Roman court, which was perceptible in his earlier writings, he now discarded, as the injustice of the papal pretensions had become clear to him. A glowing zeal, such as had been seen in the time of the apostles, characterized his masterly writings, addressed to the nobility of Germany, on the mass, on the Babylonish captivity, and on the freedom of a Christian. In these works he attacked the papal doctrines with the weapons of the word of God, and directed attention to the nobler, but forgotten, doctrines of the gospel. In 1520, when Eck published the papal excommunication against him in Germany, he appealed to a general council; and when his works were burnt in Mentz, Cologne and Louvain, he publicly committed the bull of excommunication, with the papal canons and decrees, to the flames (December 10) amidst the rejoicings of the students at Wittenberg. This year and the following, 1521, are, therefore, to be regarded as the true period of the reformation in Germany; for at this time, Luther formally separated from the Roman church, and many of the principal nobles,—Hutten, Sickingen, Schaumburg, &c.,—the most eminent scholars, and the university of Wittenberg, to which the young men of Germany and other countries now flocked in multitudes, publicly declared in favor of his undertaking. His commanding appearance, and his bold refusal to recant at the diet of Worms (April 17, 1521),—the day of his proudest triumph (see *Luther*),—gave him the power and dignity of an acknowledged reformer; the edict of Worms and the ban of the emperor made his cause a political matter. We must not, however, overlook the circumstances which favored the progress of reformation. The pope had risen chiefly by the support of Germany; in his transactions with the emperor, he had generally been supported by the German princes, who thus maintained their own independence. Rome had, therefore, been obliged to court them in turn, and the emperor congratulated himself in silence, if disputes ensued between them. On the death of Maximilian I, in 1519, the elector Frederic III, who was already the most powerful German prince, held the dignity of a vicar of the empire in all the Saxon territories, and his personal influence gave him the most decisive voice in the election of the new emperor. The pope, as well as Charles V, who was chosen chiefly by his influence in 1520, was obliged to consult his wishes; the former in changing the original summons of Luther to Rome, to a conference with his legates, and the latter in suffering the reformation to go on without violent opposition, as long as it allowed itself to be responsible to the pope and the Catholic states. By his ten months' residence in the Wartburg, Luther was secured from the first consequences of the ban of the empire, and the edict of Worms had so much the less force in Saxony, as the emperor, engaged, in 1521, in the war with France, or occupied in Spain, almost wholly lost sight of religious affairs in Germany, and each prince did what he pleased in his own territory. But that Frederic the Wise, although he did not call himself an adherent of the reformers, yet protected the heroes of the reformation, is easily explained from the concern which he took in the prosperity of the Wittenberg university, from his uprightness, his gradually increasing conviction of the justice of the views of Luther and his friend Spalatin, who managed every thing at the court of Frederic. Leo's successor, Adrian VI, who was himself desirous of a reformation, in answer to his demand for the extirpation of the doctrines of Luther, received a list of a hundred complaints from the German states assembled at the diet of Nuremberg in 1522, in which even the Catholics joined against the papal chair. The people of Wittenberg were, therefore, as little impeded in their attempts at a reform in religious worship (beginning with the mass), as those of Zürich, whose rapid progress in the change of their religious doctrines and rites found the most powerful support in the governments of the northern cantons; and Luther was even obliged to hasten from the Wartburg to quell the tumults excited by the turbulent zeal of Carlstadt. (q. v.) While he was publishing his translation of the New Testament, the fruit of his exile, which was soon followed by the Old, and Melanchthon his *Loci Communes* (the first, and, for a long time, the best exposition of the Lutheran doctrines, first published in 1521), serious preparations for the reform of papal abuses were made in Deux-Ponts, Pomerania, Silesia, in the Saxon cities (of which Leissnig was the first after Wittenberg), and in Suabia. Luther's liturgy had no sooner appeared, in 1523, than it was adopted in Magdeburg and Elbingen. The new church was not without its martyrs. In 1522, the inquisition in the Netherlands secured it this honor by the execution of some Augustines, who favored the new doctrines. Translations of the Bible into French and Dutch now appeared. In the very heart of France, at Meaux, a Lutheran church was organized. In vain did the Sorbonne condemn the principles of Luther; in vain was the execution of the edict of Worms against religious innovations resolved upon at the diet of Nuremberg, in 1524, and the convention of Ratisbon; in vain did George, duke of Saxony, Henry, duke of Brunswick, Austria, France, Spain, and the spiritual princes of the empire, labor to suppress the reformation by the persecution of the followers of Luther in their states. The same year, Luther laid aside his cowl; monasteries were deserted; priests in Saxony and Switzerland married. In 1525, John, successor of Frederic in the Saxon electorate, Philip, landgrave of Hesse, and Albert of Brandenburg, duke of Prussia, publicly declared themselves Lutherans. All their territories, Livonia, a considerable part of Hungary and Austria (Bohemia had already been gained by the Hussites), Lüneburg, Celle, Nuremberg, Strasburg, Frankfort on the Maine, Nordhausen, Brunswick, Bremen, embraced the new doctrines, and a great number of the most respectable clergymen and theologians in Germany followed the example of Luther, who married Catharine von Bora, formerly a nun. Sweden received the reformation in 1527, under Gustavus Vasa, through the labors of Olaf and Lorenzo Petri; and its example was soon followed by the greater part of Lower Saxony and the north of Westphalia, Hamburg and Lübeck. The tranquillity of this period, resulting from the absence of the emperor, during which the reformation advanced with astonishing rapidity, and almost without any impediment, interrupted the dispute of Luther with Zuinglius and Erasmus (see these articles, and *Lord's Supper*) less than the apprehensions of a war, excited in 1528 by the information of a secret alliance of the Catholic states against the Protestant; and violent measures on the part of the latter were with difficulty prevented by Luther's earnest exhortations to peace. This circumstance, however, united the party in favor of reform more closely; and from their general protest against a decree of the diet of Spires, in 1529, they received, in 1541, the name of *Protestants*. (q. v.) They now, therefore, formed a distinct political party (*Corpus Evangelicorum*); and, as the emperor returned to Germany at this time in a threatening attitude, they were forced to adopt decisive measures. After the visitations undertaken for the organization of the church system, with the aid of Melanchthon's instructions and Luther's catechisms, which appeared in 1529, while the teaching of the people in schools and churches by faithful ministers was gradually improving, Melanchthon was employed to draw up a full exposition of the Lutheran doctrines; which was subscribed by the princes already united by the league of Torgau (1526) and the convention of Schwabach (1529) (see *Schwabach, Articles of*), transmitted to the emperor at the diet of Augsburg in 1530, and solemnly read before a full assembly (June 25th), whence the declaration was called the *Augsburg Confession*. (q. v.) The emperor caused a reply from the Catholic party to be read, which was to put the question at rest; rejected the defence (Apology) of the Augsburg confession, written by Melanchthon in answer to this confutation, and insisted upon the suppression of religious innovations. A similar reply was given to Strasburg, Constance, Memmingen and Lindau, which had sent the emperor a similar paper, styled the *Confession of the Four Cities*, or *Confessio Tetrapolitana*. This conclusion of the diet was a new motive of union to the Lutherans. (For a history of subsequent events, see *Smalcaldic League*, *Interim*, and *Peace, Religious*.) The German Protestants were united by common political interests and a common creed, contained in the Augsburg confession, and its Apology (see *Melanchthon*), and illustrated by the articles of Smalcalden and the two catechisms, and finally confirmed, in 1580, by the Form of Concord. (See *Concord, Form of*, and *Creed*.) The Lutherans, or adherents of the Augsburg confession, were the three electors of the Palatinate, Saxony, and Brandenburg, twenty dukes and princes, twenty-four counts, four barons, and thirty-five imperial cities; in all eighty-six members of the empire. Sweden and Denmark (since 1536 a Protestant country), Sleswick, Pomerania, Silesia, and many important cities, on political grounds, Hesse and Bremen, from a preference for Calvinism, refused to adopt the Form of Concord. The Palatinate fell back, and the court of Berlin became Calvinistic (or Reformed). The dispute concerning the presence of the body of Christ in the sacrament of the supper (see *Lord's Supper*), between the Swiss and French Protestants, on one side, among whom, after the death of Zuinglius, Calvin was the champion, and the Saxon Protestants on the other, resulted in a total separation of the reformed church (q. v.) from the Evangelical Lutheran. The foundation of this difference between the two churches, so unfavorable to the progress of the reformation, was deeply laid in the diversity of the characters of their founders. Luther, more accustomed to think systematically, and to adhere implicitly to the letter of the Holy Scriptures, immediately brought every new idea, which was suggested, to the touchstone of his system, and admitted nothing which seemed to oppose that belief. Zuinglius, less trammelled with fixed dogmas, and more ready to follow his own judgment, was, on the other hand, more prompt to embrace those views, which at first sight appeared reasonable to him. Hence he was more in danger of adopting error as truth, while Luther was more apt to reject truth as error, lest he should renounce his faith. The east and north adhered to the opinions of Luther; the west and south followed the more liberal views of the Reformed church. The greater part of Switzerland and Geneva (1535), a great part of the population of France, particularly of the southern part (see *Huguenots*), England (in 1547, with the reservation of the hierarchical dignities, and with a temporary interruption, in the reign of Mary, in 1555—58), Scotland, where Knox introduced the Presbyterian form of church government, in 1560, on the Geneva model, and the United Provinces of the Netherlands, which, at one blow, gained Protestantism and freedom, belonged to the Reformed church. (See *England, Church of*, and *Henry VIII*; *Knox*; *Netherlands*; and *Creed*.) In Transylvania, the Lutheran confession prevailed; in Hungary, Calvinism entered with it; and in Poland, where the reformation had found numerous adherents (from 1556), the two Protestant parties, with the Moravian Brethren, concluded a convention (*consensus*) at Sendomir, in 1570, which united them in one political body, known as the *Dissidents*. (q. v.) The attempt of Gebhard, elector of Cologne, in 1582, to introduce the reformation into his archbishopric totally failed, owing to his want of prudence. Whatever dissensions may have separated the Lutherans and Calvinists at this period, they had, and still have, the fundamentals of doctrine and discipline, the spirit and the name of true Protestants in common, and every step in the progress of the reformation is to be considered as a gain to both parties. But the ill will which continued to exist between the Catholics and Protestants, even after the religious peace, eventually kindled the thirty years' war (q. v.) and devastated Germany. The peace of Westphalia established between the parties a legalized toleration; but the Protestant subjects of Catholic princes too often experienced its violation, and the Catholics in Protestant states (as the Irish) not unfrequently suffered a similar fate. (See *Religious Liberty*, and *Catholic Emancipation*.)—After this general outline of the history of the reformation, it remains to give some views of the influence which it has exercised on the religion and morals, on the literary and political condition, of nations.

From what has been said, it appears that the reformation was a necessary consequence of the mental progress of the Western, and particularly of the Teutonic nations. The opposition of its enemies gave it consistency and importance. The assaults of passionate and ignorant opposers, the intrigues and violence of the Roman court, and the applause of his whole nation, urged Luther farther than he had thought of going. Circumstances, the concurrence of which human wisdom could neither produce nor prevent, favored the enterprise beyond his highest hopes. Involved in contests with adversaries whose victory seemed almost certain, and convulsed by internal dissensions (the peasants' war, and the troubles of the Anabaptists), the reformation still made rapid progress. After it had been going on a few years, it no longer depended on its authors for the direction it should take. The influence of Protestant principles has had a large share in bringing about those improvements, which, in modern times, have extended to almost every class of society in Europe. Before the reformation, the doctrines of the church comprised a mass of propositions and precepts, the fruit of circumstances which were intended to support the divine authority of the priesthood, and rested in part on perversions of history; but the great truths which every Christian ought to know, were either neglected or adulterated, and the gospel of Jesus could hardly be recognised. In the view of Catholics, indeed, such of these doctrines as are not founded on the Bible, rest on verbal traditions, which the teachers of the church received from the apostles and fathers, and which the popes or councils, with the aid of the Holy Ghost, gradually made known (see *Tradition*); but their fruits bore no traces of their pretended divine origin. The place of religion was supplied, in the minds of the lower classes, by a mixture of fear and diversion, aided by a service full of mechanical ceremony and superstition. At one time, it was a timid fear of a spiritual being wielding the terrors of temporal suffering and eternal damnation; at another, delight in the ornaments of the churches and their priests; admiration of their splendid, and, for the most part, unintelligible exhibitions; sometimes the occupation of the imagination with various legends and miraculous histories, and prayers repeated in the order of the beads of the rosary, confessions, penances, fasts, pilgrimages, and rich gifts to the church of money and other valuables. The ignorance of the common people blinded them to the wretchedness of their spiritual condition; but the better informed soon perceived that the entire reference of the doctrines of the church to the support of the papal power, and of its worship to the visible images of the saints, directed nearly all the devotion of the faithful to things which do not belong to the Christian profession, and in no way promote a sincere reverence of God. No wonder that Christianity, thus perverted, became, in the eyes of many of the most distinguished divines and laymen, whose taste had been formed by the study of the classics, a subject of unmingled contempt. The ecclesiastical princes of Italy used it only as the instrument of their selfish purposes, and opposed with obstinacy a reformation of the church, which they viewed as dangerous and chimerical. An open rupture with the pope gave the reformers the power of throwing off the corruptions and foreign appendages of religion, both in doctrine and worship, and of restoring a Christianity which knows no rule of piety but the Holy Scriptures, asks nothing but faith and virtue, and, instead of being the secret possession of a privileged caste of priests, was laid open to all. The idea that there is something for which man is accountable only to himself and his God; that in religion human authority is nothing; and that it is, therefore, the duty of every one to study the Holy Scriptures, as its source, and to rest his faith on his own convictions; that acts of worship derive their whole value from the faith of the worshippers, and their obvious tendency to improve those who take part in them; in short, a living commentary on the doctrine, "God must be worshipped in spirit and in truth," was spread by the preaching, and still more by the writings of the reformers, among the whole mass of the people. Thousands of the scholars of the universities, the friends of philosophy and of classical antiquity, intelligent citizens, and discontented individuals of the lower clergy, had long been ready to share in the dissemination of these principles; princes and nobles, and even some bishops, felt the power of truth; and zeal for innovation was aroused, in the lower ranks, to such a degree, that in some places they aimed at nothing less than to burst all restraints. The success of their first appeals encouraged the reformers to venture the second step towards the restoration of true religion by removing all obstructions to it in the forms of the church. Among these was the mockery of a sacramental consecration of priests, which elevated the sacred office above humanity, made a privileged order the legislators of the faith, and sanctioned every abuse of ecclesiastical power; the worship of saints, relics, and images, which, as it was then conducted, detracted from the reverence of the invisible God; transubstantiation, making the Son of God to be created and sacrificed daily by the hands of men, and thus justifying the worship of the host; extreme unction, and the masses for the souls of the deceased, which drew immense tributes from the fears of the dying and the grief of mourners; and a multitude of other customs, which distracted and degraded devotion. From the superstitious fables and cunning inventions of ambition, the religious spirit now turned to a faith which it might embrace without abandoning the use of reason; for the eternal truths of the gospel, by means of Luther's excellent German translation of the Bible, and accurate versions into other languages, by the sermons and liturgies founded on it in the vernacular tongues, by catechisms and comprehensive manuals, came unadulterated before the world at large. Restored once more to its original destination, the Christian ministry among Protestants devoted itself exclusively to the labor of explaining the Word of God, and applying it to spiritual improvement; of erecting schools for the neglected youth, and raising the character of those already existing, while the clergy renounced the privileges by which they had been distinguished from the laity. Every Protestant partook of the cup in the Lord's supper; every one could understand the simple celebration of divine worship, and could join in the sacred hymns. Thus, wherever Protestantism found its way, the worship of God recovered that simplicity, and warmth, and sincerity, which had characterized it among the first Christians. It became a common work, and a bond of union, in proportion as the feeling of obligation to defend the newly acquired purity of religion from dangers and attacks from without, fanned the flame of religious zeal, and strengthened the love of brethren in the faith; hence a clearer knowledge of God, and a higher tone of piety. Religion was no longer a mere subject of the imagination, but appealed to the reason and feelings of men, and invited close investigation. Not that this beneficial influence became at once universal and complete, or was interrupted at no period of the advance of Protestantism: the best ideas, the wisest institutions, succeed only by degrees, and are never carried into execution without the alloy of human weaknesses. If we carefully examine the period of the reformation, and the spirit which animated its first friends, we shall find it a time of contest and division, when the silent operation of the new light was blended with violent hostility towards false brethren and ever-active enemies. Hence the abusive language from the pulpits and in controversial writings, which, though abundantly provoked by the menaces, violence and intrigues of the opposite party, and excusable on account of the rude tone and contentious spirit of the age, was, nevertheless, always unfavorable to the improvement of Protestantism. Hence the extravagances of precipitate innovators, which the reformers could not resist without retaining more of the forms of the existing religion, out of regard to the consciences of the weak, than a strict application of their principles would permit. Hence that war of opinions among divines, which not only prevented the coöperation of the Swiss with the Saxon reformers, but also gave an accidental importance to certain points of comparatively small importance, which, in the future system, especially of the Lutherans, occasioned great incongruities, and left deep traces of the time of their origin. The absurd *adiaphora* (q. v.), so called, gave rise to violent disputes. Altars, candles, images, mass-dresses, surplices, wafers, auricular confessions, exorcism, and even the position of the words *Vater unser* (Our Father, in the Lord's prayer), instead of *Unser Vater*, became the distinguishing signs of the Lutheran party. These contests, however, must be admitted to have had a salutary influence on the settlement of particular points of doctrine, and to have contributed to excite a lively zeal for religion. In the period subsequent to the reformation, deep religious feeling always remained the characteristic of the Protestants. There was, however, a difference between the two principal parties; for the circumstance that the Lutherans still made the Lord's supper a mystery, while the Calvinists submitted every thing to reason, produced an essential variance in their religious feelings. But that levity and infidelity which were fostered by the indifference of many eminent Catholics in Italy and France, scarcely ever found admittance into either party. They thought too highly of their faith, they were too deeply convinced of its truth, to regard any thing holy with indifference: they were ready, if necessary, to sacrifice their property and lives in the cause of religion. And this religious feeling was nourished by the affecting solemnity of the devotional exercises, which assembled the faithful in their churches, and, in the stillness of the domestic retreat, collected families around their fathers. Rich treasures of passages from the Bible were laid up in retentive memories, with many striking hymns, of which no church ever possessed more than the Protestant church in Germany and France. They passed from mouth to mouth: in business, and in all the vicissitudes of fortune, they were companions and comforters. They did more injury to the pope, as even the Catholics confess, than the most elaborate writings of the reformers. The diligent study of the Bible, and the didactic works of Arndt and other ascetics, at a time when a spirit of contest had usurped the sacred desk, made up to many the want of ingenious and powerful sermons. Through the influence of Spener, the religious character of the Lutheran church gained new life.

The reformation also had an important influence on *morals*. While the reformers abolished the principle of blind obedience to the pope and other ecclesiastical dignitaries, denied the merit of what were called *good works* (penances, fasts, alms), and the opinion that the outward observance of the precepts of the church was virtue, and rejected the possibility of acts of supererogation, by which (as was taught by a decree of 1342) saints had enriched the treasury of the church, they again awakened the smothered moral feelings of men, and introduced that more elevated morality which requires holiness of heart and purity of conduct. With the prevalent errors in morals were connected usages which, though probably well-meant in their origin, had terminated in the greatest corruptions—auricular confession, which was employed as an instrument of tyranny over the consciences and private affairs of laymen; penances, or ecclesiastical punishments, which were imposed on offenders; and indulgences, by which they purchased, at no small price, permission to sin; pilgrimages, which great numbers of the unhappy undertook, to seek absolution from wonder-working images, and to indulge in promiscuous excesses. While the reformers wholly suppressed these abuses, which made the remission of sins venal in the eyes of the people, they deprived licentiousness of the support of legal toleration, and directed penitents to seek for reconciliation with God only by faith and new obedience. They exhibited in its true vileness that gloomy asceticism, which represented inhuman self-torture, solitude, poverty, nakedness, filth, hunger and misery, and even privileged beggary and idleness, as pleasing to God, and steps towards the highest perfection: they threw open the monasteries, discharged monks and nuns from their vows, and permitted marriage to the teachers of religion. At one blow, the workshops of superstition, and the abodes of secret sins and private cruelties, were destroyed; a multitude of unhappy beings were set at liberty and restored to mankind; and the flames of a passion which had destroyed the peace of thousands of noble natures, or sated itself by the seduction of innocence, were reduced to the limits of moderation, and made to promote domestic happiness. Thus, by the abolition of celibacy and monasticism, the reformers restored to nature the rights which make it the nurse of virtue. But what places the merit of the reformation, in regard to morals, in the clearest light, next to the removal of those obstructions to virtue which existed in the ancient church, was its leading to the acknowledgment of the intimate connexion of religion with daily life, furnishing purer motives of action, and kindling the moral feeling, of which it was itself the offspring, to a warmth which produced the most valuable fruits in all the relations of public and domestic life. The reformers themselves were not the only noble examples of moral dignity and faithfulness: among their adherents, likewise, the power of the gospel and the sense of duty, gave birth to an honesty and a self-control which elevated the character of society, wherever Protestantism triumphed. The minds of men, liberated from the constraint of human authority, and referring every thing to God and the judge in their own bosoms, attained a true conscientiousness. The integrity and noble sentiments of the Protestant princes put to shame the artifices of Roman policy. A heroic courage, which sacrificed every thing earthly to the cause of truth, a firmness in the profession of faith, a cheerful spirit under the severest oppressions, a boldness and confidence in death, examples of which the world beheld with admiration, appeared among high and low. The courts of the Spanish inquisition, which raged against Protestant Christians in the Netherlands, found it necessary to substitute private executions for public ones, in order to conceal from the eyes of the people the firmness of their victims. The moral tone of the Protestants could not long remain at such a pitch: in proportion as the numbers of the Protestants increased, unworthy members found their way into the church. Moral improvement was sometimes neglected, in consequence of the zeal for orthodox opinions, especially among the Lutherans, who wanted, in general, a well-ordered system of church discipline; and an abuse of Luther's doctrine—that faith is the only ground of salvation—was sometimes made an excuse for a vicious life. But, notwithstanding this, the morality of the adherents of the reformation received from its influence much firmness and constancy. It spread most rapidly among the citizens, who had attained independence by means of the constitution of the towns; and with this class the Protestant clergy had become intimately connected by a common mode of life, by common interests, and by family alliances. The spirit of morality which they called into life, struck its roots deep and lastingly in this numerous and most flourishing class of the people. Institutions were founded in the cities for the instruction of the young and the relief of the poor; laws were made for the promotion of morality; industry was encouraged by the abolition of superfluous festivals; and a public opinion was formed, distinguished for strictness, purity, and power over the minds of men. In these respects, the Reformed or Calvinistic party excelled the Lutherans. Reformed Switzerland, and especially Geneva, where Calvin introduced a system of church discipline, and instituted a court of morals, composed of clergy and laymen, presented an example of purity, unique in its kind, which was imitated by the societies of France and Holland, and the Presbyterians of Scotland and England. The salutary and durable effects of the reformation on the virtue of its adherents in general are obvious to every traveller, even in modern times, by a comparison of Catholic countries with Protestant.

The influence of the reformation on *literature* has been very important. An acquaintance with classic antiquity, at the beginning of the 16th century, was a luxury enjoyed only by a few distinguished scholars; and it could not be otherwise under the papal dominion, which might allow classical reading, but could by no means tolerate philosophical deductions therefrom, and practical applications of them to the existing state of things, without the risk of its own overthrow. Hence, even in 1515, Leo X prohibited the printing of translations of the ancients into the vernacular tongues, though he patronised classical scholars, and gave them splendid rewards. Pomponatius was suffered to teach, at Bologna, the unreasonableness, in a philosophical point of view, of the most important doctrines of Christianity; and it was left to the contentious monks to dispute the point with him. Aretino was allowed to vent his wit in virulent libels and licentious poems. Leo X and his successors loaded him with wealth and honors, and Rome styled this monster of impiety and vice "the Divine." The sciences were permitted to become the nurses of unbelief and moral corruption, if no doubt of the supremacy of the pope was circulated, and no ray of intelligence was let in upon the people. With the learned luxury which prevailed in Italy at the revival of ancient learning, a systematic plan of keeping the people in ignorance went hand in hand. The Holy Scriptures, with the original of which scarcely an individual clergyman in the largest diocese was acquainted, narrowly escaped being added to the Index of Prohibited Books, in which all translations of them were actually inserted, except the Latin version of the church. The divines who argued against Reuchlin had seen no New Testament in Greek; and they looked upon the Hebrew as a cunningly-devised language of sorcerers. The philosophy of the scholastics followed the philosophy of Aristotle; not that of the instructer of Alexander, but a tissue of empty subtleties and rash assumptions, which was called by its disciples, "the wisdom of Aristotle;" but by Luther, "a cold, stinking and dead dog."—The study of the ancient languages, the general use of Latin, as a medium of literary intercourse, and the invention of the art of printing, promoted the progress of learning; but the only element in which they could flourish, and the only direction in which they could be of general utility, they received through the reformation. This broke the fetters in which the hierarchy had bound the human mind; wrested from the clergy the abused monopoly of knowledge; established and protected freedom of thought and the liberty of the press; awakened a spirit of investigation and a love of learning, and opened to criticism, in all branches of knowledge, a boundless field. Among the first promoters of it, there were some men, who loved tranquillity, that, like Erasmus, remained ostensibly attached to the ancient church; but their principles, their exertions, the spirit of their works, showed beyond dispute that they really belonged to the Protestant party. The principle of freedom from human authority, pronounced by the reformation, opened the way to all scientific improvement. The Bible being now acknowledged as the only rule of faith, it became the duty of every theologian to understand the Greek and Hebrew text. This naturally led the Protestants to an acquaintance with the language of Homer and Plato, which Reuchlin had first recommended to the Germans, and to the cultivation of Oriental literature, of which none but the Jews and Arabs then knew any thing. A multitude of old Latin and Greek manuscripts, which till then had been not at all, or but partially understood, were brought to light from the dusty libraries of the abolished convents, and by the critical diligence, mostly of the Protestant literati, were made capable of being generally used. Science sprung into new existence, with the freshness and strength of youth, when Melanchthon, who had become wiser and better for his studies, and the bold and industrious Calvin, were the teachers of Germany and France. This effect of the reformation appears strikingly from the fact, that before its commencement the south of Germany was superior in literary refinement to the north; and half a century later, when Protestantism had fixed its seat in the north, the reverse was the case; and, from that period, the Protestant countries of Europe have far outstripped the Catholic in intellectual cultivation.

The influence of the reformation on the *arts* was less happy. It removed the images from the churches, and deprived the masses of their dramatic and musical attractions. It repressed the predominance of imagination, and restored to reason its rights. It taught men to prefer the good to the beautiful, and to feel a dignity in despising those means of excitement which operate through the senses, and to abstain from outward splendor. This severity to the arts, which cut off their connexion with religion, and robbed them of that share of public veneration which they had received from Catholicism, met with its punishment in the decline of the fine arts among the Protestants. This was particularly the case with the Calvinistic or Reformed party; for the Lutherans retained many paintings in their churches, and always celebrated their festivals with music. On the other hand, Protestantism inspired a love of devotional poetry, and was favorable to eloquence, as it made the sermon the chief part, the very soul, of public worship, and, by the introduction of the vernacular tongues into the liturgy, gave them a dignity which had an important influence on the national literature of the people under its sway. The useful arts were greatly promoted by the reformation. It aroused a spirit of seriousness, accuracy and perseverance; it promoted commerce and public prosperity; and England, the north of Germany, and Switzerland, have shown that, in this respect, no Catholic nation can compare with them.

The most visible consequences of the reformation, and those long since most fully acknowledged in history, are those which relate to *politics*. The church was no longer independent of, but became incorporated with, and merged in the state. The reformers had no political object in view; but their work first attained a political importance and direction on account of the zeal of its great enemy for worldly dominion. A large proportion of those abuses of the ancient religious usages—in which all ranks, including even well-disposed clergymen, found a motive to urge the reformation of the church—rested on the political encroachments and avaricious demands of the popes. On them, not the clergy only, but the nations and princes, were made dependent; to them they were obliged to pay enormous tributes, under various pretexts, increased from age to age. Their influence extended to a great part of the administration of public justice, in consequence of the ever-augmenting extent of the episcopal jurisdiction, and the power which the papal legates assumed to the injury of the bishops. Hence the princes were perpetually interrupted in the exercise of their authority by the church, which formed, as it were, a state within the state. The kings of France alone were able to maintain a position of honorable independence. The mass of the people was oppressed; in the administration of government, arbitrary rule and personal authority every where prevailed over legal order. In the nobility, there was a spirit of rudeness and violence, which led them continually to violate the rights of the other classes

No wonder that, under these circumstances, the magic name of *evangelical freedom* immediately awakened thoughts of civil liberty, and became to the suffering people a signal for insurrection. Still, however, the guilt of having occasioned the peasants' war can as little be charged to the reformers, who expressly discountenanced such excesses, and labored both by word and deed to check them, as the foolish struggle of the Anabaptists against all civil order. Wherever the reformers, in their advance, impinged on the relations of civil life or of established rights, they went to work with a moderation which gained for them the confidence of governors and princes. The Swiss reformers, indeed, were far bolder than those of Wittenberg; they were favored with republican governments, and acted with the consent of the rulers. The course of the reformation in Protestant Germany, and Switzerland generally, was this: The communities, particularly in the cities, negotiated with their rulers according to their own consciences and the advice of the reformers. The princes concurred in their plans, and established institutions accordingly. In Prussia, Sweden, Denmark, England, and those German states which came over later, the princes made changes of their own accord, and the people found themselves sinking gradually into the new forms imposed upon them. Where the government continued Catholic, the friends of the new doctrines exercised their worship in secrecy and silence. The reformation liberated the princes from all the obligations and grievances which their dependence on a foreign spiritual power had imposed on them. They now obtained for themselves the episcopal privileges which had once limited their authority; and the instruments of power, which had formerly served the church, came, as far as Protestantism permitted their use, into their hands. The return of the clergy to civil society increased the number of their subjects, and various causes augmented their resources and the prosperity of their people beyond computation. These were the acquisition of the church estates, which had come under their power, or, as in the case of the abolished convents, into their possession; the cessation of the vast emissions of money from their states, which had been occasioned by the avarice of Rome, the efforts of legates, the privileges of foreign archbishops, the begging of mendicant friars, and the connexion of the religious orders with foreign governors: another cause was the new spring given to commerce, trade and agriculture, and the increase of population, occasioned by the immigration of their exiled brethren in the faith. They were now free to arrange their financial systems, to improve the state of their dominions, to augment their armies, and to provide for the wars with which they were threatened. And, as religion, which, till the peace of Westphalia, was really or ostensibly the chief motive of the civil alliances and wars was also the subject dearest to the heart of every individual, the animation of the people prompted them to risk their wealth and their blood in the cause of their rulers. Thus the Protestant princes became great, and states of small extent obtained a high political importance, for which they were mostly indebted to the reformation. The church gained much in spirituality by its improvement, as has appeared from the preceding views of morals, literature and religion. It lost its temporal goods, indeed, to the princes, but received back a large proportion of them, to be applied to worthier purposes. From the patrimony of the ancient church, the funds for public institutions of learning were increased; new and better ones were established; orphan asylums and hospitals were founded; rewards provided for literary men of merit, and the income of the lower clergy increased. With the goods of the church, the persons of the clergy came likewise under the jurisdiction of the temporal princes. The influence of the reformation has not been felt merely by the nations which have adopted its principles; the states which most violently opposed it, have learned by experience the danger of attempting to repress the operation of deep-rooted and wide-spread convictions. If Charles V had cherished sufficient love for the Germans, and for the cause of evangelical truth, which probably had made some impression on him, to sacrifice to it his Spanish crown, he might have preserved Germany, which, in his time, was almost entirely devoted to the new doctrines, from the bloody religious wars which afterwards desolated it, and have made it an invincible monarchy under the Austrian sceptre. The struggle of Spain against the new doctrines procured her more hatred and ridicule from Europe generally, than honor in Rome, and was followed by the decay of her greatness. France, whose kings, in conformity with their maxim, to use the reformation abroad as a means of exciting dissension among the neighboring powers, and to suppress its doctrines within their own dominions, were at the same time the friends of the Protestant princes and the bitter persecutors of their own Protestant subjects, expiated the guilt of its double-dealing in the ruinous civil wars and emigrations which it occasioned. Still more pernicious was the opposition to Protestantism in the case of Poland, for the destruction of which Russia made use of the same policy which France had employed with tolerable success in Germany; viz. affording support to the Dissidents (q. v.), and entering deeply into its internal dissensions. The states of Italy, which tolerated nothing that savored of reformation, sunk deeper and deeper in political insignificance, which was, indeed, owing more to the discovery of a passage by sea to the East Indies, and the intercourse with America, than to the reformation. The popes struggled against this formidable enemy with resolution, and in some cases with success. In the states which continued faithful to the church, they established institutions for resisting the progress of the new doctrines, and for the persecution of heretics. By the happy result of their missions to Asia and America, they gained a spiritual dominion over territories more extensive than the half of Europe, which they had lost by the reformation. But this success was transient, and of little utility to their treasury. No mission could compensate for what they had formerly drawn from Germany, England and Scandinavia. They were obliged by necessity to curtail their ancient extravagance, and by shame to correct the morals of the clergy. Even the Catholic princes, by degrees, grew more prudent, and diminished the power and the revenue of the papal court in their states, particularly after the peace of Westphalia. (See *Pope.*) The Catholics would no longer yield the same obedience to it as before; for, particularly in Germany (Austria and Bavaria), in France, and even in Spain, principles and opinions were imperceptibly propagated, which made them partakers in the new light that had spread over Europe. They began to distinguish the true Catholic from the Roman church; and the doctrines of the latter not founded on the Bible were viewed as merely disciplinary, and not to be put on the same footing with divine truth.—See Planck's *History of the Protestant Doctrine* (6 vols., 2d ed., Leipsic, 1791); Heeren's *Developement of the political Consequences of the Reformation* (Historical Works, part i); Menzel's *History of the Germans from the Reformation*, &c. (part i, Breslau, 1826); Burnet's *History of the Reformation*; the histories of England, by Hume, Lingard, Mackintosh; and also the article *Great Britain*.

Reformed Church, in a general sense, comprehends all those churches that have been formed by a separation from the church of Rome; but the term Reformed is often restricted to those Protestant churches which did not embrace the doctrines and discipline of Luther. The title was first assumed by the French Protestants, and afterwards became the common denomination of all the Calvinistical churches on the European continent. It is in this restricted sense that we wish it to be understood in the present article. The same need of a reformation of the church, which excited the zeal of Luther in Germany, in the first half of the sixteenth century, induced many distinguished literary men and clergymen in Switzerland and the Netherlands, in England and France, to labor for the same end. Among the Swiss, Ulrich Zuinglius and John Œcolampadius (*see these articles*) were the most prominent. When the Franciscan Bernard Samson, a kindred spirit with Tetzel, preached the efficacy of indulgences with equal shamelessness, and came to Zürich, where Zuinglius was a religious teacher, the latter violently attacked him, and, the council of Zürich seconding his zeal, Samson was not tolerated in the city. In vain did a papal nuncio labor to put down the reformer, and in vain did the Swiss confederacy warn and threaten him. After many changes in the forms of public worship, on his own responsibility, in 1523, he transmitted sixty-seven propositions in German, in which he set forth his doctrines, to the council of Zürich; the council gave them to the world, and invited the reformer to a disputation, and attended, with many of the citizens, when it took place. A large part of the audience was gained over to his sentiments. The work of reform was now carried on with impetuosity, and much that was in itself innocent, and perhaps even useful, was abolished. The altars, fonts and images were banished from the churches; even vocal music and the organ were proscribed. The confederacy, January 26, 1524, at the diet of Lucerne, threatened to exclude Zürich from the council; but she stood firm, and the town of Mühlhausen soon declared in favor of the new doctrines. Capito (Koeflin) introduced the reformation into Bâsle; and, after 1523, Œcolampadius continued his work. In 1524, the first efforts for a reformation were made at Schaffhausen. From 1525, Berne also was more inclined to the same, and even the zealous Catholic cantons began to feel their need of it. At length, a religious disputation took place in 1526. Here Œcolampadius maintained the contest against a large number of vehement Catholics, among whom John Eck was most prominent. Zuinglius did not appear, and the papal majority issued against him a sentence of excommunication; but they could not obstruct his influence. Berne resolved, in 1528, upon another disputation, though against the will of all the other cantons and the emperor himself. But nothing was settled; and the only consequence was, that the people of Berne were more decided in favor of the reformation. It now spread more and more, notwithstanding all the resistance of the Catholic cantons—Schweitz, Uri, Unterwalden, Zug, and Lucerne. A large proportion of the confederates had already become devoted to the Protestant doctrines, when these Catholic cantons, having formed an alliance, for the defence of their opinions, with king Ferdinand (brother of the emperor Charles V) prepared to appeal to arms. The Catholics renounced all connexion with the Protestants, and in October, 1531, Zürich, abandoned by the rest of its party, was forced to appear on the field alone. October 11, her soldiers were defeated at Cappel. Zuinglius himself, who led his adherents, fell in the battle. But the bloody defeat did not check the progress of his opinions. Zuinglius had made known his doctrine, that the bread and wine, in the Lord's supper, are mere symbols of the body and blood of Christ, in a letter published, much against his will, November 16, 1524, and had first declared them publicly, in 1526, in his Commentary on true and false Religion (*Commentarius de vera et falsa Religione*), and afterwards in many controversies with Luther and others. In fact, his religious views, in general, were characterized by a reference to reason. By his restless spirit of inquiry, his peculiar sagacity, and moving eloquence, he succeeded in raising his own notions to a dogmatical authority in the Swiss churches. Out of Switzerland, too, his system found much favor, and in several countries became the prevailing one. The churches, however, which inclined to his doctrines, were early divided in various ways, and a perfect union was never effected. Zuinglius himself lived too short a time to bring about a complete organization of the Swiss churches. Œcolampadius, who was the pillar of the new church after him, was soon removed by death. But even during his life, Zuinglius never had that decisive authority among his adherents, which Luther possessed among the German Protestants, and which led to a greater unity among them. The other Swiss reformers did not stand in the same relation to Zuinglius as the German reformers did to Luther; they acted more independently, and hence not, at first, in perfect harmony, in the work of the reformation. But there soon arose a man in the Swiss church, who acquired most important authority, and even gained over many Swiss and French Protestants to the opinions in which he differed from Zuinglius. This man was John Calvin (q. v.), who, flying from France, found an asylum in Geneva, and soon acquired the greatest influence. In his doctrine concerning the Lord's supper, he differed somewhat from Zuinglius. But the doctrines of election and predestination he made the distinguishing characteristics of his system, and his opinions on these subjects excited opposition, and awakened new dissensions in the Reformed churches. Before his death, the ecclesiastical relations of Switzerland were more fully settled, and Glarus, Appenzell, Biel, the Grisons, and Neuberg, became attached to the Reformed party. This party, however, never formed a proper church with a uniform creed. In 1530, Zuinglius had made known his own creed and the creed of his adherents to the diet of Augsburg, where the German Protestants also set forth their profession of faith. But this was not the universal creed of the Reformed party, and did not secure their recognition as a church by the secular authorities. The Swiss, however, to secure the aid of the Protestants in Germany against the Catholics, sought a reconciliation with the Lutherans; but the Wittenberg Concord, so called (see *Sacrament*), failed of its object. Afterwards, in 1549, in the *Consensus Tiguriens*, the controversy between the people of Zürich and the Calvinists of Geneva was composed; but even then, there was no true union of doctrine. At length, in the peace of Westphalia, in 1648, the Swiss were recognised as adherents of the Augsburg confession and a religious party. But they did not adopt the Augsburg confession unconditionally, or acknowledge it as their symbolical book. At length, after tedious contests, John Henry Heidegger, a divine of Zürich, in 1671, drew up the *Formula Consensus Helvetici*, in twenty-six articles, with particular reference to the existing disputes among the Reformed theologians. This new form of concord, after 1675, was gradually adopted by the Reformed Swiss cantons, but by several of them only nominally, and a perfect concord could never be effected in Switzerland. Out of Switzerland, the Reformed party were decidedly opposed to it, and thus new dissensions were kindled. In the midst of the severest contests, the reformation had spread through the Netherlands, where the majority of the Protestant party adhered to the doctrines of Luther; but the Netherlandish confession of 1551 inclined to the Swiss creed, and it was afterwards greatly altered. Maurice, prince of Orange, whom the Netherlands termed the preserver of their civil liberty, was an advocate of the latter. Soon, however, a violent controversy was kindled here among its adherents, when Jac. Arminius attempted to soften the Calvinistic doctrine of predestination, and Francis Gomarus, his colleague in Leyden (especially after 1604), violently opposed him. Excellent men, such as Hugo Grotius and others, agreed with Arminius; and after his death, Simon Episcopius (bishop) defended his opinions. But the contest grew more and more violent; for political motives became interwoven with religion. The Arminians—now called *Remonstrants* (q. v.), from their *Remonstrantia*, or confession, transmitted, in 1610, to the states of Holland—were cruelly persecuted by the Gomarists, or Contra-remonstrants, and the religious conferences at the Hague and Delft led to no reconciliation. At length, in 1618, the celebrated synod of Dort was convened, and, after protracted deliberations, rejected the doctrines of the Remonstrants, in May, 1619, and confirmed the severe, but somewhat mitigated doctrine of predestination. But foreign theologians would not concur unconditionally in the decrees of the synod; the Remonstrants (q. v.) maintained their standing as a distinct party, and published, in 1621, a distinct creed, composed by Episcopius. In France, the Reformed party (see *Huguenots*) was exposed to the severest attacks; by the edict of Nantes, in 1598, they first enjoyed toleration. But although they submitted to the doctrines of Calvin, they had no firm bond of union within themselves. The English church, which is reckoned among the Reformed, was instituted in so peculiar a way, was involved so early in controversies among its members, and divided into so many parties, that it hardly deserves the name of a church. The creed of 1551, which consisted originally of forty-two articles, but was reduced to thirty-nine articles, in 1562, by the synod of London, and was neither purely Zuinglian nor Calvinistic, could not unite the contending parties. (See *England, Church of*.) Unsuccessful attempts have often been made to unite the Reformed and Lutheran churches. In the Prussian dominions, and some other German states, however, since 1817, the long projected amalgamation of the Reformed and Lutheran churches into one evangelical Christian church has been partly effected, and attended with important results.

Reformed, Dutch. The general synod of the Dutch Reformed is the oldest body of Presbyterians in America. It descended immediately from the church of Holland, and its doctrines are the same with those of that church. (See *Reformed Church*.) The first church was founded in New York, about 1639. The doctrines of this sect were the established religion of the colony of the New Netherlands, until it surrendered to the British in 1664. Most of the Dutch Presbyterians are in New York; the remainder are chiefly in New Jersey and Pennsylvania. The whole number at present in the U. States is about 125,000.—*Reformed German* is the counterpart of the Reformed or Calvinistic church in Germany. (See *Reformed Church*.) The people of this persuasion were among the early settlers of Pennsylvania. There their churches were first formed; but they are now to be found in nearly all the states south and west of Pennsylvania. The present number in the U. States is about 200,000.

Refraction, double. Rays of light, in traversing the greater number of crystallized bodies, are commonly split into two pencils, one of which, called the *ordinary ray*, follows the common laws of refraction, whilst the other, called the *extraordinary ray*, obeys very different laws. This phenomenon, first observed in the Iceland spar, or crystallized limestone, is called *double refraction*. It occurs in all transparent minerals, whose primitive forms are not referable to the cube or the regular octahedron. The division of the beam is greater or less in different substances, and according as they are cut. Double refraction is found in various animal and vegetable bodies; and it may be communicated, either permanently or transiently, to substances in which it does not naturally reside. In all double refracting substances, there are one or more lines, or planes, along which double refraction does not take place. Those substances in which there is only one such plane or line, are called *crystals*, or bodies with one axis, or one plane of axes of double refraction; and those which have two, three, four, &c., such lines are called *crystals*, or bodies with two, three, four, &c. axes, or planes of axes, of double refraction. When the doubly refracting force does not exist in any of these axes, or planes of axes, the axis is called a *real axis* of double refraction; but when the disappearance of double refraction arises from the existence of two opposite and equal doubly refracting forces, which destroy one another, the axis, or plane of axes, are called a *resultant axis*, or plane of double refraction, or an *axis* or *plane of compensation*. If the ray, which suffers the extraordinary refraction, is refracted *towards* the axis, or plane of axes, of a doubly refracting body, the axis is called a *positive axis* of *double refraction*; and if it is refracted *from* the axis, it is called a *negative axis* of *double refraction*. (See *Optics*.)

Refractor, or **Refracting Telescope.** (See *Telescope*.)

Refuge, Cities of, among the Hebrews; six cities belonging to the Levites, in which a person, who had committed involuntary murder, might take refuge from the vengeance of his pursuers, until his case was investigated. (*Deut.* xxxv, 6.) If the murder was proved to have been intentional, the culprit was given up to the avenger of blood; if otherwise, the latter could not injure him within the precincts of the city. (See *Asylum*.)

Refugees. This name is given particularly to the French Protestants, who fled from their native country on account of the persecutions to which they were exposed after the repeal, in 1685, of the edict of Nantes, under which the reformed doctrines had enjoyed toleration from the year 1598. (See *Huguenots*, *Maintenon*, and *Louis XIV*.) The cruelties which inquisitorial zeal had produced in other countries, were renewed in France, against the *heretics*, as they were, called. Dragoons were quartered on them, and were to compel them, by oppressions of every description, to renounce their faith; and those who could not be made to recant, either died under the sabre, or were obliged to pass their lives in prison, or in banishment beyond the sea. To escape this state of misery, many fled from their native land. But the government did all which they could to deprive them of this means of escape. The frontiers of France were occupied by troops, and every Protestant, who fell into their hands, was abused, deprived of his property, loaded with chains, and confined in the galleys with the most abandoned criminals; children were taken from their parents, and educated, in monasteries, in the Catholic faith. Nevertheless, 800,000 Protestants, at least, were able by artifice, and in some cases by force, to escape from their native country. England, Denmark, Holland, Switzerland, Germany, in the latter especially Saxony, Bradenburg, and Hesse, received these fugitives with hospitality. Merchants and manufacturers went to England and Holland, whither they could more easily convey their property, and at the same time employ it more profitably. The nobility, soldiers, artists, literati, mechanics, and manufacturers, went to the states of Bradenburg. In many of these countries, the governments gave to the emigrants equal privileges with their other subjects, and received large additions to their resources from the wealth and skill which a fanatical king had driven from his own kingdom. In the Brandenburg states, where these refugees obtained the most extensive civil privileges, they became the founders of a large part of the manufactures, which at the present time constitute so considerable a part of the wealth of the Prussian monarchy. They exerted a still more important influence on the intellectual and moral culture of the countries to which they fled. Concerning the reception of the fugitive French Protestants, in the electoral states of Brandenburg, see the *Denkwürdigkeiten* of Christian William von Dohm (5th vol., 475).

Regalia (*jura regalia*); in general, the privileges connected with the sovereign power. They are either such as necessarily originate from the nature of government, or such as are accidentally attached to the sovereign. Of the former sort is the power of judicature; of the latter, such rights as that of collecting amber, which belongs to the king of Prussia. Some rights are now so intimately connected with the public order, that they belong to the former class, though many states have existed without them (e. g. the privilege of coining money, which was exercised by certain families in ancient Rome). As states and governments have gradually grown up from rudeness and lawlessness, it may easily be imagined how much ignorance, in some cases and force in others, have influenced the idea of regalia. Among some German tribes, the precious metals and stones were considered as belonging exclusively to the sovereign; and even now a citizen has not, in all countries, the right to work mines on his own ground. Some tribes allowed their princes the sole privilege of hunting all the larger animals, except animals of prey; some sovereigns declared all unclaimed property, as waifs, estrays, or newly formed land on the seashore, &c., *regalia*. These regalia are also called *majora* (comprehending what relates to the sovereign's power and dignity) and *minora* (what relates to his *fiscal* or pecuniary prerogatives).—*Regalia* also denotes, in England, the regal *insignia*, the sceptre with the cross, sceptre with the dove, St. Edward's staff, four several swords, the globe, the orb with the cross, and other articles used at the coronation.—*Regalia* of the church denotes, in England, those rights and privileges which cathedrals, &c., enjoy by the concessions of kings.—*Regalia* is sometimes also used for the patrimony of a church.

Regardant, in heraldry, is applied to a lion or other beast of prey, in the attitude of looking with his eyes towards his tail.

Regatta, a public diversion in Venice, in which boats run races on the canals that intersect the city. Each boat contains one person only, and the boat which first reaches the goal, receives a small prize in money. The number of spectators present, in ornamented gondolas, make the principal attraction of this festival.

Regensburg. (See *Ratisbon*.)

Regent. *Regent*, in a general sense, is a ruler, the ruler of a state; in a more limited sense, one who exercises the highest power vicariously during the absence or incapacity of the lawful sovereign. The right to the regency is created by law, agreement, or by last will and testament. By a testamentary appointment, a ruler can legally establish a regency only when the right of a third person to the regency, founded upon law, is not injured. The same is true in respect to regencies made by agreement. Among the regencies of modern times, that of Philip, duke of Orleans (q. v.), during the minority of Louis XV of France (from 1715 to 23), was deplorable in its consequences for France, and, indeed, all Europe. Our times have seen the regency of George, prince of Wales (George IV), and the short regencies of the former empress of France, Maria Louisa, and that of the queen of Etruria of the same name; the regency of the crown-prince Frederic of Denmark (1784—1808), when he ascended the Danish throne under the name of Frederic VI. (q. v.) It is worthy of remark, that, within the last fifty years, three regencies of crown princes have taken place in Europe on account of the mental imbecility or insanity of the kings of Great Britain, Portugal and Denmark. Of late, when Belgium separated herself from the kingdom of the Netherlands, and Poland rose against Russia, persons were placed at the head of affairs with the title of *regent*, indicating that the revolted countries did not declare themselves against monarchy.

Reggio. (See *Modena*.)

Reggio, Duke of. (See *Oudinot*.)

Regiment; a body of troops, either infantry or cavalry, consisting in the former case of one or more battalions (q. v.), in the latter, of several squadrons. The average number of a regiment of infantry, in the various services, may be stated at about 1800. A colonel or lieutenant-colonel generally commands a regiment. Artillery is also sometimes divided into regiments in time of peace (e. g. in France and Prussia). Regiments were first formed in France in 1558, and in England in 1660. By the act of congress of March 2, 1821, the military peace establishment of the U. States is composed of four regiments of artillery, consisting each of nine companies, and seven regiments of infantry, consisting each of ten companies; each company consisting of forty-two privates.

Regiomontanus, whose real name was John Müller, and who, according to the custom of his time, assumed that of Regiomontanus, in allusion to the place of his birth, Königsberg (King's mountain), in Franconia, was born in 1436. He exhibited great precocity of talent, and, having received a classical education at Leipsic, placed himself under Purbachius (Peurbach), the professor of mathematics at Vienna. Under so able an instructer, he made the greatest proficiency, and became one of the first astronomers as well as mechanics of that age. Regiomontanus, together with Purbachius, accompanied cardinal Bessarion to Rome in 1461, where Beza gave him further instructions in Greek literature, which enabled him to complete a new abridgment in Latin of the Almagest of Ptolemy (Venice, 1496), and to correct many errors in the former translation, made by George of Trebizond. In 1471, he built an observatory at Nuremberg, and established a press; but, after a stay of little more than three years, returned to Rome, on the invitation of Sixtus IV, who employed him in the reformation of the calendar, and rewarded his services by raising him to the bishopric of Ratisbon. He died in 1476, according to some, of the plague, according to others, by poison administered by the son of George of Trebizond, out of revenge for his having exposed the errors of his father. Regiomontanus was the first in Germany to apply himself to the cultivation of the neglected science of algebra. He made great improvements in trigonometry, into which he introduced the use of tangents. His refutation of a supposed discovery of the quadrature of the circle, and his numerous writings on various subjects of natural philosophy, display extensive learning and great acuteness. His astronomical observations from 1475 to 1506 (under the title *Ephemerides*) are very accurate. Of his works, the most valuable are his *Calendarium*; *De Reformatione Calendarii*; *Tabula magna primi Mobilis*; *De Cometæ Magnitudine Longitudineque*; *De Triangulis*. His life has been written by Gassendi (*Opera*, vol. v).

Regius Professors. Henry VIII founded five lectures in Oxford and Cambridge, viz. divinity, Hebrew, Greek, law and physic, the readers of which lectures are in the universities' statutes called *regii professores*.

Regnard, John Francis; a comic poet, born at Paris, Feb. 8, 1655. Having received a good education, and being set free from restraint by the death of his father, he went to Italy in 1676 or 1677. He was fond of play, and, being very fortunate, was returning home with a considerable addition of property, when he was captured by an Algerine corsair, and, being sold for a slave, was carried to Constantinople. His skill in the art of cookery rendered him a favorite with his master; but at length he was ransomed, and returned home. He did not, however, remain there long; for in April, 1681, he set off, in company with others, on a journey to Lapland, and after going as far north as Torneo, he returned through Sweden, Poland and Germany. Regnard then retired to an estate near Dourdan, eleven leagues from Paris, where he died, in September, 1709. He wrote an account of his northern tour, a number of dramatic pieces (the best of which are the *Joueur*, *Légataire Universel*, *Distrait*, and *Retour Imprévu*), poems, and other works, which have been often published, in six vols., 8vo., and four vols., 12mo.

Regnier, Mathurin, born at Chartres in 1573, died at Rouen in 1613, early showed an irresistible inclination to satire. His poetical talents gained him powerful friends, and the cardinal François de Joyeuse took him to Rome, whither he also afterwards accompanied the French ambassador Philippe de Béthune. Some valuable benefices, which were conferred upon him, enabled him to lead a life of ease and pleasure. His works consist of satires, epistles, elegies, odes, epigrams, &c.; but his satires, sixteen in number, are the principal basis of his reputation. Persius and Juvenal are his models, which he surpasses in the licentiousness of his pictures. His coloring is vigorous, but his style is incorrect, and his jests are often low and indecent; yet he is not destitute of true poetical turns, delicate wit and a pleasing humor.

Regnier Desmarais, François Séraphin, born in Paris in 1632, died in 1713. While yet at college, he translated the *Batrachomyomachia*, and after travelling in the train of several men of distinction, he became secretary of legation to the duke de Créqui, French ambassador at Rome. Such was his knowledge of Italian, that an ode written by him in that language was believed to be by Petrarch, and the academy *della Crusca* chose him a member of their body. He was equally well acquainted with the Spanish. In 1670, he was admitted into the French academy, of which, in 1684, he became perpetual secretary. His labors in the compilation of the *Dictionnaire de l'Académie*, were of the greatest value, and he was the author of the grammar which appeared under the name of the academy in 1676. In his 80th year, he collected his poems under the title of *Poésies Françaises, Latines, Italiennes, et Espagnoles*. His historical works are of less value.

Regular denotes any thing that is agreeable to the rules of art; thus we say a *regular* building, verb, &c. A regular figure, in geometry, is one whose sides, and consequently angles, are equal. All regular figures may be inscribed in a circle.

Regulator of a Watch; the small spring belonging to the balance, serving to adjust its motions, and make it go faster or slower.

Regulus, Marcus Attilius, a Roman general, celebrated for his patriotism and devotion in the service of his country, was made consul a second time about 256

B. C., and with his colleague, Manlius Vulso, commanded in the first war against Carthage. Notwithstanding the little experience which the Romans then had in naval warfare, the consuls defeated a superior Carthaginian fleet, and effected a landing in Africa. Here Regulus followed up his victories so successfully, that in a short time he presented himself before the capital of the enemy. Carthage, deprived of its fleet, and not accustomed to military operations by land, sued for peace. Regulus, more of a soldier than a politician, persisted, with the Roman haughtiness, in his demand of unconditional submission. The Carthaginians preferred to die rather than to accept such terms, and at this juncture were joined by a small body of Spartan volunteers under Xanthippus. The Grecian general gave battle to Regulus under the walls of Carthage, where thirty thousand Romans fell, and Regulus was made prisoner. Carthage could now hope to obtain a peace upon better terms. An embassy was, therefore, sent to Rome, accompanied by Regulus, who was obliged to bind himself by an oath to return to Carthage, if Rome should refuse the terms proposed. Regulus, however, considered it his duty, in opposition to the wishes of the Carthaginians, to advise the continuance of the war; and neither the prayers and tears of his wife and children, nor the entreaties of the senate and people, who were ready to save the liberty and life of such a citizen by any sacrifice, could bend him from his purpose. The prosecution of the war was, therefore, decided upon, and the Carthaginian ambassadors returned home astonished and irritated, and with them Regulus, in obedience to his oath. The cruel revenge which the Carthaginians are said to have taken on Regulus, is doubted by many modern inquirers, and the silence of Polybius and Diodorus Siculus upon this subject, is certainly remarkable; however this may be, his firmness in refusing to purchase his life by the sacrifice of the public good, is worthy of admiration.

Regulus, in chemistry, denotes a metal in its most extensive sense—a metal in its proper metallic state. The term is now little used. The old chemists chiefly employed it as a distinctive appellation, when a metal and one of its ores happened to be called by the same name.

Reichardt, John Frederic; a musical composer, and author, who was a corresponding member of the French institute. He was born at Kőnigsberg, in 1751; studied in the university of Kőnigsberg, under Kant; travelled much; was appointed, in 1775, master of the chapel for the Italian opera in Berlin; did a great deal for music under the reign of Frederic William II; was appointed, in 1807, by the king of Westphalia, director of the French and German theatre; and died in 1814. His compositions are very numerous; among which are the Tamerlane of Morel and the Panthea of Berquin. Some of his lighter productions are very fine. His literary productions are, Familiar Letters, written during a Journey in France in 1792 (2 vols., 8vo.); New Familiar Letters during a Journey in France in 1803 and 1804 (3 vols., 8vo.); Familiar Letters on Vienna, &c.; Napoleon Bonaparte and the French People under his Consulate, &c. In 1804 and 1805, he was conductor of the Musical Gazette of Berlin. Reichardt was not a great musical genius, but had formed himself by study and an excellent taste.

Reichenbach, George of, a distinguished mechanical artist, was born, August 24, 1772, at Manheim, and died at Munich, May 21, 1826. In the establishments for the manufacture of optical instruments, which he founded at Munich and Benedictbeurn (q. v.), in 1805, in conjunction with Utzschneider and Fraunhofer, all the instruments necessary for astronomical and geodetical operations were made in great perfection. The great meridian circles of three feet diameter, the twelve inch repeating circles, theodolites, &c., which proceeded from these manufactories, are unsurpassed in simplicity and convenience of construction, in the fineness and delicacy of their divisions, and in their whole arrangement. The telescopes from the optical manufactory of Fraunhofer at Benedictbeurn, are distinguished for the excellence of their flint glass, and, in fact, their whole construction. (See *Telescopes*.) The great equatorial instrument of Reichenbach and the heliometers of Fraunhofer have satisfied the highest expectations of astronomers. Reichenbach constructed a peculiar instrument for baron Zach, in 1812, which may be called a portable observatory, as it unites in itself the two principal instruments of an observatory—a perfect meridian telescope joined to a repeating circle, together with a repeating theodolite for the measurement of azimuths. He likewise distinguished himself by his ingenious constructions at the Bavarian saltworks (see *Berchtesgaden*, and *Reichenhall*), and by his invention of iron bridges, according to a new method, to which he devoted a particular treatise.

Reichenbach, Congress and Convention of. (See *Congress.*)

Reichenberg, the largest provincial town of Bohemia, in the circle of Buntzlau, at the foot of the Jeschkenberg, on the river Neisse, has 14,000 inhabitants and much manufacturing industry. The environs afford precious stones. There are about 900 master weavers of woollen cloth, producing annually 100,000 pieces (of thirty-six ells each); numerous dyers, spinners, &c. There are also 400 master linen-weavers, and 300 master workmen engaged in making stockings. About 38 populous villages around Reichenberg are supported by it. The Bohemians are naturally great musicians, and the traveller is surprised by excellent musical choirs in many of the manufactories in this place.

Reichenhall, a town in the Bavarian circle of the Isar, with 2400 inhabitants, on the Sala, is, in some measure, the central point of the four gigantic Bavarian salt-works. The most ancient documents respecting the salt-works of Reichenhall reach back to the eighth century; but the wood in the immediate vicinity having been so far exhausted, that the brine could no longer be boiled on the spot, a brine-conductor was constructed as early as 1618, by a Mr. Reifenstuhl, to Traunstein, a distance of several leagues, by which it is carried over a perpendicular height of 828 feet. A similar conductor of brine was executed in 1809, in 20 months, by Von Reichenbach (q. v.), to Rosenheim, on the Inn, a much greater distance, in spite of numberless obstacles. Mr. Reichenbach effected, in 1817, a connexion of the salt-works at Reichenhall, Traunstein and Rosenheim, with the salt-works at Berchtesgaden. (q. v.) Though the Ferdinandsberg, near Berchtesgaden, is situated 160 feet higher than Reichenhall, yet, on account of the intervening mountains, the brine is raised by two machines 1579 Rhenish feet, and descends again 1740 feet to Reichenhall. For this, a structure of pipes, partly covered, partly open, 102,000 Rhenish feet in length, part of wood, part of iron, was necessary. One of the machines, constructed, according to a new principle, by Reichenbach, raises the saturated brine 1218 Rhenish feet perpendicularly.

Reichstadt, Duke of. Reichstadt is a lordship in Bohemia. The chief town of the same name contains a beautiful castle and 1900 inhabitants; about fifty miles north-east of Prague. The emperor Francis I bestowed the title of duke of Reichstadt on his grandson Napoleon Francis Joseph Charles (born March 20, 1811), son of Napoleon and Maria Louisa, daughter to Francis I, now duchess of Parma. The letters patent (of July 22, 1818) grant the young prince the dignity of serene highness, with a rank next after the princes of the blood, and a particular coat of arms. The revenue of the lordship, consisting of the fourteen Tuscan estates, is about 400,000 guilders, or about $160,000. When Lucca passes into the possession of the grand-duke of Tuscany, this lordship will fall to the duke. (See *Parma.*) The duke of Reichstadt resides, at present, at Vienna. Even previously to his birth, he was designated as king of Rome; and a few days after his baptism he received the homage of the different authorities, whom the countess of Montesquiou, as governess of France, answered in his name. After the fall of Napoleon, he was placed under the care of his grandfather, who, at first, destined him for the church, but afterwards gave him a military education. He had excellent teachers, as, for instance, Von Hammer. In Austrian and other German official papers, his name is given as Francis Joseph Charles only; so that the name of Napoleon seems to have been dropped.

Reid, Thomas, an eminent metaphysician, was born in 1710, at Strachen, in Kincardineshire, where his father was minister, and educated at Marischal college, Aberdeen. In 1737, he was presented by King's college, Aberdeen, with the living of New Machar, in the same county, where the greater part of his time was spent in the most intense study. In 1752, he was elected professor of moral philosophy at King's college, Aberdeen, and, in 1763, accepted the same office at Glasgow. In 1764, he published his celebrated Inquiry into the Human Mind on the Principle of Common Sense, which was succeeded, in 1786, by his Essays on the Intellectual Powers of Man, and, in 1788, by his Essay on the Active Powers. These, with an Analysis of Aristotle's Logic and an Essay on Quantity, form the whole of his publications. He died in October, 1796, in his eighty-sixth year, with a high character for benevolence and integrity, as well as for talents.—See the article *Philosophy, Intellectual*, and his life by Dugald Stewart. A French translation of his works by Jouffroy, with an Introductory Essay, and the Notes of Royer Collard, has recently appeared at Paris (1828 seq.).

Reil, John Christian, professor in the university of Berlin, was born Feb. 20, 1758, in East Friesland. In 1783, he was graduated at Halle. After having practised medicine for some time, he was appointed professor of therapeutics, in 1787, in Halle. He taught and practised there for twenty years, until the conquest of Germany by the French ruined this ancient university. In 1810, he was appointed professor in the newly created university of Berlin. In 1813, he was appointed one of the highest medical officers in the military department; but before the time for his entry on his new avocation, the typhus fever carried him off, Nov. 22, 1814. Reil had many excellent qualities. He was particularly distinguished for his skill in mental maladies, and has acquired a lasting reputation by his investigations into the structure of the brain, and his new physiological views. His work On the Symptoms and Cure of Fever will long survive him.

Reindeer. (See *Deer*.)

Reinecke. (See *Renard*.)

Reinhard, Francis Volkmar, a celebrated Protestant preacher, born in 1753, was a native of the duchy of Sulzbach, in Germany. He was instructed by his father (who was a clergyman) till he was sixteen, when he was admitted into the gymnasium of Ratisbon, where he remained five years; and, in 1773, he was removed to the university of Wittenberg. The study of sacred eloquence especially attracted his attention; and his reputation procured him, in 1782, the chair of theology, to which, in 1784, was added the offices of preacher at the university church and assessor of the consistory. In 1792, he was invited to Dresden to become first preacher to the court of Saxony, ecclesiastical counsellor, and member of the supreme consistory. After filling these stations with high reputation for about twenty years, he died, Sept. 6, 1812. His principal works are, A System of Christian Morality; An Essay on the Plan formed by the Founder of Christianity for the Happiness of the Human Race; Sermons; Letters of F. V. Reinhard on his Sermons, and on his Education as a Preacher; Lectures on Dogmatic Theology.

Reinhold, Charles Leonard, born in Vienna, Oct. 26, 1758, was professor of philosophy, first in Jena (from 1787), then at Kiel (from 1794), where he died, April 10, 1823. His Catholic parents destined him for the church, and sent him to study with the Jesuits in Vienna. When the order was abolished in 1774, he entered the college of the regulated priests of St. Paul (generally called *Barnabites*), where he became, at the age of twenty-two years, professor of philosophy. During the reign of Joseph II, he distinguished himself by many philosophical treatises in periodical works. But his vigorous and inquiring mind could not fail to discover the weakness of many Catholic dogmas. He left Austria in 1787, and the same year was appointed professor at Jena, having written a celebrated Vindication of the Reformation against two chapters in Schmidt's History of the Germans. Jena owed to him much of its reputation. We cannot enumerate his many works; but they are all remarkable as the productions of a mind which freed itself by its own efforts from the prejudices of education. In his philosophy, he followed Kant, Fichte, Bardili and Jacobi. Professor Ernest Reinhold, his son, published, in 1825, in Jena, his life, with a number of letters addressed to him by Kant, Fichte, and many celebrated philosophers.

Reinsurance, in commerce, a contract by which the first insurer relieves himself from the risks he had undertaken, and devolves them upon other underwriters, called *reinsurers*.

Reis Effendi. (See *Effendi*.)

Reiske, John James, a distinguished German philologist, was born at Zörbig, in Saxony, in 1716. He was the son of a tanner, who was able to do but little for his education. After studying, from 1728 to 1732, in the orphans' school at Halle, he went, in 1733, to the university of Leipsic. Rendered gloomy and melancholy by his monastic education at Halle, he did not attend any lectures at Leipsic, but studied by himself, without method. He here studied the Arabic language, devoting to that object all the resources at his command; and, in 1738, though entirely destitute, undertook a journey to Leyden, then the seat of Arabic literature. In Hamburg, he found two patrons (Wolf, a clergyman, and professor Reimarus), who enabled him to accomplish his wishes. In Leyden, Schultens gave him access to the library, of which he made diligent use. D'Orville and Burmann, who employed him in making translations and correcting the press, became his patrons. Reiske pursued his philological studies with the greatest zeal, and, at the same time, attended to theoretical medicine, and received the degree of doctor, free of expense, from the medical faculty. He had gained much reputation in Leyden for learning and industry; but he refused offers which were made him, in the hope (which was never, however, fulfilled) of better. He might have succeeded in Holland, if he had not made enemies by his self-will and love of independence. He returned to Leipsic in 1746, but was there, also, unable to procure any place, except that, in 1748, by the favor of the elector, he received the title of professor of Arabic, and was obliged to gain his subsistence by private instruction, writing of books, correcting the press, translating, and by contributions to critical journals. Meanwhile, he was always pressed for want of money, as he spent almost all which he acquired in purchasing books, especially in Greek and Arabic literature, and turned his works to little account. In 1756, by the explanation of an Arabic inscription, he attracted the notice of the count of Wackerbarth, who procured him, in 1758, the rectorship in St. Nicholas's school at Leipsic; the duties of which he discharged with fidelity for sixteen years, notwithstanding his numerous literary labors. In 1768, he married Ernestine Christina Müller, a lady of uncommon talents and learning, who assisted him in his labors, and was his faithful companion till his death in 1774. Greek literature is indebted to Reiske for excellent editions of Theocritus (Vienna and Leipsic, 1765, 2 vols., 4to.), of the Greek orators (Leipsic, 1770—75, 12 vols.), of Plutarch (Leipsic, 1774—79, 12 vols.), of Dionysius of Halicarnassus (Leipsic, 1774—77, 6 vols.), and of Maximus Tyrius (Leipsic, 1774, 2 vols.). Uncommon erudition and critical acuteness are displayed in his *Animadversiones in Græcos Auctores* (Leipsic, 1759—66, 6 vols.), containing emendations of a great number of passages of the Greek classics. His collection of manuscripts, chiefly Arabic, which he had himself transcribed or purchased, was bought, after his death, by Suhm of Copenhagen. His Life, written by himself, with impartiality and frankness, was continued to his death by his wife, and published, at Leipsic, in 1783. The excellent *Vita Reiskii* by Morus (Leipsic, 1777) should be compared with it.

Reka; Russian for *river*, as *Tchernaia-reka* (Black river).

Relation (Italian *relazione*) was the name given to the full and minute account which a Venetian ambassador was obliged to render, on his return, to the council of the Pregadi, respecting the state of the country to which he had been sent, its foreign and domestic relations, the character of the prince, chief officers and people. These, together with the reports which the ambassadors were obliged to make every week, were preserved in the archives. As early as 1268, the senate passed a law obliging the ambassadors to write down every thing remarkable which fell under their observation. In 1465, the word *relazione* came into use. The last of these *relazioni* mention the beginning of the French revolution. They were often copied by order of patrons of science, so that many are found in the libraries at Rome, Paris, Berlin; some are in Gotha, and several in smaller libraries of Italy. In the beginning of 1831, a number of them were sold among the manuscripts of the late lord Guildford. The circumstance that Venice stood, in early times, in very important relations to all the principal powers of Europe, particularly to Spain and the sultan, when the Porte was at the apex of its power, renders the *relazioni* one of the most important and most interesting sources of modern history.

Relegatio (exile); a punishment in use among the Romans, particularly under the emperors. The name has been retained in the government of German universities. (See *Consilium Abeundi*.)

Relics; the remains or supposed remains of holy persons, saints (q. v.), or martyrs, or some objects belonging to them, or in some way connected with them. These relics were multiplied particularly after the crusades. Thus in some places are shown the shroud in which the body of Christ was laid, pieces of the cross, of objects surrounding the sepulchre, and relics of Mary, Joseph, and the holy men of the early Christian church. At first, these objects were only held in high esteem; but eventually superstition ascribed to such relics miraculous powers, and a system of fraud was countenanced by the Roman clergy for their profit: honors, little short of divine, were paid to these objects, and more virtue was attributed to a splinter of the cross than to the word of the Savior.

Relief. (See *Relievo*.)

Relief, in law; a certain sum of money, which the tenant, holding by military service, and being at full age at the death of his ancestor, paid to the feudal lord at his entrance on the possession of the estate.

Relievo (*Italian*), or **Relief**; sculptured work, raised above a surface with which it is connected. It has several gradations (*basso*, *mezzo*, and *alto-relievo*). Originally, with the Greeks, it was very flat, as in the instance of the lion on the gate of Mycenæ, perhaps the most ancient preserved relief. Phidias brought it to perfection; and the cornices and metopes of the Parthenon, and the temple of Apollo at Bassæ, near Phigalia, in Arcadia, preserved by a fortunate accident, are yet unrivalled models of *relievo*. In the sculpture of the later Romans, who strove to supply by technical execution what was wanting in spirit, the high relief (*altissimo relievo*) was adopted, in which the figures were so raised as to stand almost entirely out from the ground, which was covered with other figures, in low relief. Probably works in precious stones of several layers, cameos in *pietre dure*, occasioned these attempts, of which the collection of antiques at Dresden contains remarkable specimens. It was the intention of Algardi and his followers to carry relief still farther. They even attempted perspective representations, including landscapes. A misconception of the true limits of sculpture and glyptics, in relation to painting, was the cause of these aberrations from a just taste, which have maintained themselves in medals. Thorwaldsen (q. v.) has restored to the relief its true and simple character, whilst Canova's *relievi* strive too much to imitate painting. Another kind of relief has been employed of late, which, however, is not to be commended. On medals, particularly, the figures have been represented on an elevated surface, as if cut in an onyx of two layers. For all these kinds of work, the Greeks had the general name ἀναγλυφα; also γραπτα ἀναγλυφα, because they were frequently painted. As yet, no Greek *reliefs en creux* have been found, such as were used in Egypt—slightly raised sculpture, in a depressed surface, often filled with colors. In hard stones, these can be worked only with the best steel.

Religion. This word, defined in so many ways, is derived from the Latin *religio* (a sacred oath, or obligation), but that which it signifies, is as old as man and his relation to God, whom it presupposes. Man is not only placed in a certain relation towards the Deity, but is naturally led to the idea of his existence, the comprehension, in some degree, of his nature, and the study of his own relations towards him. This disposition and capacity, rude as its early manifestations may be, makes man a religious being. Religion, therefore, in its widest sense, may be defined to be the sentiment and knowledge of our relation to God, and of the great variety of consequences flowing therefrom. *Religion* is also used in English for *piety*, or the disposition to do what the individual believes to be the will of God. The religious disposition, and the degree of religious knowledge, show themselves in various ways; and the communication of this knowledge, as it relates to supernatural subjects, must be often effected in a symbolical way; and the forms in which the religious feeling expresses itself (forms of worship), must be of a symbolical character. The variety in the modes in which the religious feeling manifests itself in different nations, gives rise to the idea of positive religion. A positive religion is religion modified by the peculiar developement of the religious disposition, by peculiar views respecting the relation of man to God, and of his destiny, as well as by peculiar customs and symbols of worship. In this sense we speak of a Mohammedan, pagan, Christian, Jewish religion. A particular form of religion becomes predominant by a variety of causes; by the growing authority of tradition, or the intellectual superiority of particular men, who imbue families, tribes, nations, with their own religious notions, by the blending of politics and religion, and not unfrequently by persecution itself. The adherents of most religions, moreover, refer the establishment of their own particular form of faith to the direct interference of the Deity whom they worship. It is the province of the philosophy of religion to investigate the original principle of all religions, and the most hidden causes of the variety in the developement of this great, eternal, original principle. The history of religion shows the historical developement of this principle, and those general notions which lie at the basis of each religion. (See Benjamin Constant's work on religion.) The different views entertained of revelation (q. v.) lead, of course, to different views of religion. Those who are convinced that man could not have obtained a sufficient knowledge of his relation to God by the faculties within him, but that a direct interposition of the Deity was necessary, oppose revelation to natural religion, by which is understood that knowledge of our relations to God which we may obtain by our own faculties, unaided by the special interference of the Deity. Some theologians, however, particularly in Germany, do not confine revelation to a direct interference of the Deity on a particular occasion, but give this name to all communion, of the highest kind, of man with God; so that they, in fact, blend natural and revealed religion, and do not admit any thing as revelation which does not satisfy their reason. These are called *naturalists*, or *rationalists*. Their opponents are called *supernaturalists*. (q. v.) The rationalists must not be confounded with deists.

Religion, Established, or Religion of the State, is that form of religion to which certain privileges are attached; for instance, certain political rights to its professors, or certain distinctions to its priests or ministers. The revolution of July, 1830, changed the clause in the French charter, which declared the Catholic religion the religion of the state, to a declaration that it was the religion of the majority. (See *Religious Liberty*, *Non-Conformists*, *and England*, *Church of*.)

Religious, as a substantive, is used for the members of religious orders, monks and nuns. (See *Orders*.)

Religious Liberty, or **Liberty of Conscience**, is the freedom of a man to worship his God as he pleases, if he does not thereby disturb the peace of the commonwealth. It exists in perfection where the adherents of every religion can worship publicly, conduct schools and seminaries, make their own liturgy, and, in fact, conduct all their religious concerns according to their own pleasure, without being in any way subjected to the ministers or churches of another faith; where the professors of all religions enjoy equal rights; where, in fact, government takes no cognizance of religious concerns, provided the public peace is not injured nor the rules of morality violated. This perfect religious liberty exists only in the United States, and, as far as we know, has never existed elsewhere. According to the constitution of the United States (art. VI), "no religious test shall ever be required as a qualification to any office or public trust under the United States, and (amendments, art. I) congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." To this day no Christian sect is tolerated in Portugal, Spain, Naples, Sardinia, the States of the Church, and the minor governments of Italy, but the Roman Catholic, though Jews and their worship are tolerated.

Religious Peace. (See *Peace, Religious*.)

Remainder, in law, is an estate limited in lands, tenements, or rents, to be enjoyed after the expiration of another particular estate.

Remains, Organic. (See *Organic Remains*, and *Geology*.)

Rembrandt van Rhyn, Paul, one of the most celebrated painters and engravers of the Dutch school, was born in 1606, in a mill near Leyden, which belonged to his father. His passionate love for art disappointed his father's desire of educating him as a scholar. Paul received instruction from James van Zwanenburg, a painter of little note, and afterwards studied in Amsterdam under Lastmann, Pinas and Schooten. But he soon returned home, and pursued his labors there, taking nature as his sole guide: the nature which he consulted, was, however, low; his situation was by no means adapted to lead him to a conception of the truly beautiful, sublime and ideal; and, as he made no effort to correct the defects of his early education, it was natural that he should confine himself to delineations of common life, and find pleasure in them alone. Throughout his whole life, he retained both this view of art and the same mode of living, associating only with common people, and never acquiring a taste for better society. About 1630, Rembrandt removed to Amsterdam, and married a handsome peasant girl, whom we find often copied by him. His paintings were soon in extraordinary demand; and his avarice induced him to abandon his former careful and finished execution for a hasty manner. He also took a great number of pupils, of whom he received a high price for his instructions, selling their works, retouched by himself, for his own. His avaricious shifts have given rise to several erroneous statements respecting his life; thus, for example, he dated several of his etchings at Venice, to make them more saleable; and this circumstance led some of his biographers to believe, that he was actually in Venice in 1635 and 1636. But he never left Amsterdam again, though he was constantly threatening to quit Holland, in order to increase the demand for his works. As early as 1628, he had applied himself zealously to etching, and soon acquired great perfection in the art: his etchings were esteemed as highly as his paintings, and he had recourse to several artifices to raise their price, which are still employed by celebrated engravers. For example, he sold impressions from unfinished plates, then finished them, and, after having used them, made some slight changes, and thus sold the same works three or four times. He would secretly buy up, at auction sales or otherwise, his own works, and then cause them to be secretly offered for sale by his son, as if they had been stolen from his father, &c. By these tricks, and by his parsimonious manner of living, Rembrandt amassed a considerable fortune. Rembrandt was master of all that relates to coloring, distribution of light and shade, and the management of the pencil; but he has no claims to the other requisites of a true artist—composition, grouping, dignified expression, design, perspective, drapery and taste. He drew, indeed, from naked models, for which he used his scholars; but what sort of models they made, is easily perceived from his works. In his composition and grouping, he followed common nature alone, and his humor at the moment; in designing, he followed his model. He generally concealed the naked parts as much as possible, rarely allowing the hands or feet to be seen, because he was unable to execute them correctly, almost always making them too large or too small. In those works where he could not avoid naked figures (for instance, in the Descent from the Cross, the Burial, and in some representations of Bathsheba in the Bath), he is entirely destitute of proportion, generally disagreeable, at least common. His drapery is fantastical, entirely without judgment, for the most part without taste, and even ridiculous. He purchased a collection of all sorts of foreign dresses, arms and utensils, which he introduced into his pictures. Notwithstanding his great readiness of touch, his designs, even in portraits, and his drapery, are said to have cost him infinite pains. It cannot be denied that his works possess expression and character; but they have no dignity. His heads are expressive, but, for the most part, caricatured; his Marys are common women, his Christ, a man of the lowest class of people, &c. On the other hand, his pencil is masterly and unique, possessing an energy and effect belonging to no other artist; and in this consists his peculiar talent. His coloring is magical. Each tint he applied in its proper place, with the greatest correctness and harmony. His pictures are therefore all full of warmth, and his *chiaro-scuro* replete with inimitable truth. In his lights, he laid on the colors so unsparingly, that they project far from the surface, and thereby much increase the effect. He generally introduced very strong lights in his pictures. He always preferred light from above, and therefore had a small aperture made in his chamber, by which alone his model was lighted. To this uniform method it must be ascribed, that his coloring is almost always alike, and somewhat monotonous. His numerous paintings are dispersed in various public and private cabinets. The most celebrated are Tobias and his Family kneeling before the Angel; the Two Philosophers; Christ at Emmaus; the Workshop of a Carpenter; the Good Samaritan; the Presentation in the Temple; the portrait of himself and his wife; the Threatening Prisoner; Samson and Delilah; a Descent from the Cross; Christ among the little Children; the Apostle Paul; the portraits of his mother and himself; a Holy Family; Hagar; Christ in the Temple; a Burial of Christ; the Sacrifice of Manoah; the Feast of Ahasuerus; Ganymede; portraits of himself and his mother and daughter (the Girl with the Carnation); Saul and David; Tobias; a Circumcision; Himself and Family, and landscapes. Rembrandt's engravings possess a wonderful freedom, facility and boldness, and are truly picturesque. His careless, unstudied manner agrees with the low subjects which he generally selected. His most distinguished pupils, who are easily recognised by their manner of coloring, were Ferdinand Bol, Gerard Douw, Gerbrand van Eckhout, Michael Poorter, Philip Koning, Govaert Flink.

Remonstrants. (See *Arminians*, and *Arminius*.)

Remscheid; a village and parish in the duchy of Berg, now in the government of Düsseldorf, in Prussia, one of the most important manufacturing places in Germany. It is extensive, and has about 6000 inhabitants. About 400,000 scythes, many files, saws, &c., are made here annually; also steel ware of all kinds.

Remus. (See *Romulus*.)

Rémusat, Jean Pierre Abel, one of the most distinguished linguists of Europe, member of the academy, and professor of the Chinese and Tartar languages at the *collège de France*, was born at Paris, Sept. 5, 1788. Having studied medicine, he received the degree of doctor in 1814, but at the same time followed his inclinations, which led him to the study of the Oriental languages, particularly the Tartar, Chinese, Thibetan, &c. In 1811 appeared his *Essai sur la Langue et la Littérature Chinoises*, which attracted the attention of the learned, and opened to him the doors of the academies at Grenoble and Besançon. Some other writings on the Chinese soon followed. In 1814, Louis XVIII appointed him professor, and in 1816, he was admitted into the academy of inscriptions. After Visconti's death in 1818, he was appointed editor of the *Journal des Savans*. Many excellent treatises by him have appeared in the *Moniteur* in the *Journal des Savans*, in the *Fundgruben des Orients*, &c., some of which have also been published separately. His principal works, besides the *Essai*, are his *Plan d'un Dictionnaire Chinois* (1814); *Le Livre des Récompenses et des Peines* (translated from the Chinese, 1817). He also assisted in the *Mémoires concernant les Chinois* (1814, in 16 vols.), and, in 1820, made known to us a second Plato in the Chinese philosopher Lahotsé. His *Mélanges Asiatiques* (Paris, 1825, 2 vols.) contain treatises upon the religion, morals, language, history and geography of the nations of the East. In 1827, he made the Parisians acquainted with the manners of the Chinese through his *Contes Chinois* (3 vols.). Concerning Rémusat's Chinese grammar, and the difference between the structure of the Chinese and the Sanscrit, Greek, German and Latin languages, consult Alexander von Humboldt's *Sendschreiben an Rémusat* (Paris, 1827).

Renard the Fox (in German, *Reinecke*, or *Reinicke der Fuchs*). This famous satire, in the epic form, appeared at Lübeck, in 1498, in Low German (q. v.), in the Frisian dialect, under the title *Rynke de Vos*. It is an admirable satire on the intrigues practised at a weak court. The characters are animals, and the arch rogue the fox, called *Renard*, is the hero. Nothing is known with certainty respecting the author, who calls himself "Henry von Alkmaar, schoolmaster and tutor of the duke of Lorraine," and pretends to have translated it from the French. (Meon has published the French *Roman du Renard*, written in the thirteenth century, from manuscripts. Paris, 1823). Rollenhagen, in his preface to the *Froschmäusler*, thinks Nicholas Baumann (born at Emden, in 1450) to have been the author. He was in various public employments, and a doctor of law. The wrongs which he suffered at the court of the duke of Juliers are said to have induced him to write this poem. In 1479, appeared at Gouda, in Holland, and, in 1483, at Delft, a *Historie von Reynäert de Voss*, in prose, which is considered by some as the true original, composed of several French fables. This was republished in 1783, at Lübeck. The latest editions are those of Eutin (1797), by Bredow, and of Halberstadt (1825), by Scheller. Several *rifacimenti*, in High German, have appeared: and a part of it has been rendered into hexameters by the poet Göthe. It has been translated into several modern languages, and also into Latin. The English prose translation ought not to be taken as a specimen of the original, in which humor and wit abound.

Rendezvous; the port or place of destination, where the several ships of a fleet or squadron are appointed to join company, or to rejoin, in case of separation.—*Rendezvous* is also a name given to any house where a press-gang resides, and volunteers are invited to enter into the navy; also a place appointed to meet in at a certain day and hour.

Reni, Guido. (See *Guido Reni*.)

Rennel, John, was born in 1742, and, at thirteen, was sent on board a ship-of-war as a midshipman, and served in India. In 1766, he entered into the East India company's military service, and was afterwards appointed surveyor-general of Bengal. He soon after gave to the world his Bengal Atlas, and an Account of the Ganges and Burrampooter. He returned to England in 1782, and published a Map of India, accompanied by a memoir. Besides the works already mentioned, he was the author of Memoir on the Geography of Africa, with a map (1790); the Marches of the British Army in the Peninsula of India (1792); Elucidation of African Geography (1793); a second and third Memoir of the Geography of Africa (1799); the Geographical System of Herodotus explained (4to., 1800); Observations on the Topography of the Plain of Troy. He died in 1830.

Rennes; a city of France, with 30,000 inhabitants, formerly capital of Brittany, at present of the department of the Ille-et-Vilaine, situated at the confluence of the two rivers; 218 miles west of Paris; lat. 48° 7′ N.; lon. 1° 41′ W. Rennes contains several public buildings and literary and scientific institutions, with a public library of 30,000 volumes. Its trade and manufactures are inconsiderable. It was, before the revolution of 1789, the seat of a parliament, which was distinguished for its opposition to the arbitrary measures of the court.

Rennie, John; a celebrated engineer, born in East Lothian, in 1760. His father was a respectable farmer, who gave him a good education, and placed him with a millwright. After serving out his articles, he commenced business on his own account, but, in 1783, was induced to remove to London, where his reputation rapidly increased, until he was regarded as standing at the head of the civil engineers of Great Britain. Among his public works may be mentioned Ramsgate harbor, Waterloo and Southwark bridges, at least as to construction; the breakwater at Plymouth, and the Bell Rock lighthouse, erected on the same principle as that of the Eddystone. Mr. Rennie was remarkable for steady resolution and inflexible perseverance, and was, at the same time, in the highest degree punctual and steady in all his engagements; and, although in some respects a self-taught man, he acquired the respect of the most distinguished men of science and learning in his day, and was elected a member of the royal society. His death took place in 1821.

Rente, in French, signifies, in general, all the net income which a man enjoys without labor; therefore the profits of real estate as well as of capital.—*Rentier*; one who lives on his *rentes*. (For the French public stocks which go under the name of *rentes*, see the article *Public Stocks*, division *French Stocks*.)

Repnin (Nicholas Wasiliewitsch), prince, a Russian field-marshal, the son of a prince of the same name, who served in the army of Peter I, was born in 1734, and distinguished himself in the seven years' war in the French army. After the elevation of Stanislaus Poniatowski to the throne of Poland, in 1764, he became Russian minister at Warsaw, and for some years governed the Poles in effect. In 1774, he was sent ambassador to Constantinople, and, in 1778, to Breslau, as general and negotiator, where he contributed to the treaty of Teschen. In 1789, he commanded the army of the Ukraine, and formed the blockade of Ismail, afterwards taken by Suwarrow. In July, 1791, he defeated the grand-vizier Yussuf. He was afterwards governor of Livonia. After the last partition of Poland, he received the government of Lithuania, and subsequently served under Suwarrow. Paul I, in 1796, made him a field-marshal, and, in 1798, sent him on a secret mission to Berlin. He died in May, 1801.

Representative Governments. (See the article *Constitution.*) The history of representative governments has not yet been written, though few works would be of more interest to the times in which we live, than one in which the various manifestations of the representative principle should be traced from the conquering military republics, erected on the ruins of the Roman empire, through the aristocratic institutions of the middle ages, down to the present democratic age, and in which it should be shown how all the branches of civil, and many of ecclesiastical, government, were originally blended, and gradually acquired more distinctness and purity; how the representative principle expanded in England more quickly than in the rest of Europe, and its democratic part, being transplanted to another hemisphere, branched forth with new vigor, and produced a degree of liberty never known before.

Representatives, House of. (See *Congress of the United States.*)

Reproduction. (See *Microscopical Animals.*)

Reptiles. In the Linnæan arrangement, the class of cold-blooded vertebral animals which breathe by lungs (*amphibia*) consisted of two orders: *reptilia* (having four feet), as the tortoise, frog, lizard, &c., and *serpentia* (having no external organs of motion). In Cuvier's classification, the class of *reptilia* corresponds nearly to the *amphibia* of Linnæus, and is divided into the four orders of *chelonia* (tortoise, turtle), *sauria* (crocodile, lizard, chameleon), *ophidia* (serpents, boa, viper), *batrachia* (frog, salamander, proteus, siren). (See *Animals.*) Reptiles are distinguished from birds and quadrupeds by their cold blood and single heart (with only one ventricle), and from fish by their respiring through lungs. Their blood is never at a much higher temperature than that of the medium in which they live. No other animals are capable of enduring so great extremes of heat and cold as the reptiles, especially some particular species: frogs, for instance, have continued to live in the human stomach, and in lumps of ice. From the peculiar structure of their bodies, they are able to suspend their respiration for a considerable time, and are also endowed with the faculty of enduring an abstinence that would prove fatal to warm-blooded animals. Most of them can live in the air as well as in water. Many live indifferently in either element. Some pass a certain period of life, or certain seasons of the year, in one, and the rest in the other; and some, finally, are confined to the water, or to the land. They live chiefly in morasses, swamps and stagnant waters, damp, dark places, caves, and holes in the earth. As means of defence, nature has given to some of them great bodily strength, or sharp teeth, as to the crocodile; to others a deadly poison, as to certain kinds of serpents; to others a hard covering, as to the tortoise; to many a disgusting smell, or an acrid humor, which they eject. Some of them have a remarkable power of reproduction, by which they renew parts of the body of which they have been deprived. Some can live for an incredibly long time without air, and even without food, and some undergo transformations like insects. None of them chew their food, but they swallow it whole, and digest it at leisure. They are in general extremely tenacious of life, and will continue to move, and perform other animal functions, even after the severest injuries. Their colors and general appearance are, in most instances, disagreeable: some, however, are decorated with the most vivid coloring. Their voices are either harsh and grating, or they are entirely dumb. Most reptiles are oviparous. In some, particularly in the frogs, the eggs are not fecundated until after their expulsion from the female; hence they are merely provided with a thin membranous covering. The eggs of others, as the tortoise's, have a soft, tough skin, resembling parchment, while, in other genera, the eggs are furnished with a hard, calcareous shell. In those species which are viviparous, the eggs are regularly formed, but are hatched internally, as in vipers, &c. (See *Organic Remains.*) The following arrangement of the *reptilia* is that given by the prince of Musignano; and, although it presents points of objection, these are as few as in any other attempt of the kind; added to which it is the latest:—

Class.
REPTILIA.

First Sub-Class.
PULMONEA.

Order I.
CHELONII.
First Family.
TESTUDINIDÆ.
§ Testudinina.

1. Testudo, *L.*
   Sub-genera, 3.
2. Terrapene, *Bonap.*
3. Kinosternum, *Bonap.*
4. Emys, *Bonap.*
   Sub-genera, 2.
5. Hydraspis, *Bell.*
6. Chelonura, *Flem.*

§§ Chelydina.

7. Chelys, *Dumer.*

§§§ Trionicina.

8. Trionix, *Geoff.*

Second Family.
CHELONIDÆ.
§ Sphargidina.

9. Sphargis, *Merr.*

§§ Chelonina.

10. Chelonia, *Brong.*

Order II.
SAURI.
Third Family.
ICHTHYOSAURI.

11. Teleosaurus, *Geoffr.*
12. Steneosaurus, *Geoffr.*
13. Ichthyosaurus, *Koenig.*
14. Saurodon, *Hays.*
15. Plesiosaurus, *Conybeare.*
16. Geosaurus, *Cuv.*
17. Megalosaurus, *Buckland.*

Fourth Family.
CROCODILI.

18. Crocodilus, *Cuv.*
   Sub-genera, 3.

Fifth Family.
LACERTIFORMES.

First Sub-Family.
LACERTIDÆ.
§ Tupinambina.

19. Varanus, *Merr.*
   Sub-genera, 4.
20. Teius, *Merr.*
   Sub-genera, 6.

§§ Lacertina.

21. Lacerta, *L.*
   Sub-genera, 2.
22. Tachydromus, *Oppel.*

Second Sub-Family.
STELLIONIDÆ.
§ Agamina.

23. Uromastix, *Cuv.*
24. Cordylus, *Gronov.*
25. Stellio, *Daud.*
   Sub-genera, 2.
26. Agama, *Daud.*
   Sub-genera, 15.
27. Lophura, *Gray.*
28. Draco, *L.*
   Sub-genera, 2.
29. Pterodactylus, *Cuv.*
30. Chlamydosaurus, *Gray.*

§§ Iguanina.

31. Iguana, *Cuv.*
32. Ctenosaura, *Wiegm.*
33. Ophryessa, *Boie.*
34. Leiocephalus, *Gray.*
35. Basiliscus, *Daud.*
36. Polychrus, *Cuv.*
37. Ecphimotes, *Fitzinger.*
38. Ophiurus, *Cuv.*
39. Anolius, *Cuv.*
40. Mosasaurus, *Conybeare.*
41. Iguanadon, *Mantell.*

Third Sub-Family.
GECKOTIDÆ.

42. Cirtodactylus, *Gray.*
43. Euplephoris, *Gray.*
44. Phyllurus, *Gray.*
45. Gymnodactylus, *Spix.*
46. Stenodactylus, *Cuv.*
47. Spheroidactylus, *Cuv.*
48. Ptyodactylus, *Gray.*
49. Phyllodactylus, *Gray.*
50. Thecadactylus, *Cuv.*
   Sub-genera, 4.
51. Hemidactylus, *Gray.*
52. Platydactylus, *Cuv.*
   Sub-genera, 6.

Fourth Sub-Family.
CHAMÆLEONIDÆ.

53. Chamæleon, *Daud.*

Fifth Sub-Family.
SCINCIDÆ.

54. Scincus, *Daud.*
   Sub-genera, 3.
55. Gymnophthalmus, *Merr*
56. Spondylurus, *Fitz.*
57. Heteropus, *Wiegm.*
58. Gerrhosaurus, *Wiegm.*
59. Gerrhonotus, *Wiegm.*
60. Trachysaurus, *Gray.*
61. Cicigna, *Gray.*

Sixth Family.
ANGUIDÆ.
* Tetrapodi.

62. Seps, *Daud.*
   Sub-genera, 5.
63. Chalcides, *Daud.*
   Sub-genera, 4.

** Bipedi.

64. Bipes, *Lacep.*
   Sub-genera, 2.
65. Chirotes, *Cuv.*

*** Apodi.
§ Anguina.

66. Pseudopus, *Merr.*
67. Ophisaurus, *Daud.*
68. Anguis, *L.*
69. Acontias, *Cuv.*

§§ Amphisbænina.

70. Typhlos, *Schn.*
71. Amphisbæna, *L.*
   Sub-genera, 2.

Order III.
SERPENTES.
Seventh Family.
OPHIDII.

First Sub-Family.

COLUBRIDÆ.

§ Ericina.

72. Anilius, *Oken.*
Sub-genera, 2.
73. Erix, *Daud.*
74. Clothonia, *Daud.*

§§ Boina.

75. Boa, *L.*
Sub-genera, 2.
76. Python, *Daud.*

§§§ Colubrina.

77. Erpeton, *Lacep.*
78. Scytale, *Merr.*
79. Coluber, *L.*
Sub-genera, 13.

§§§§ Acrochordina.

80. Acrochordus, *Hornstedt.*

Second Sub-Family.

HYDRIDÆ.

§ Bungarina.

81. Bungarus, *Daud.*
82. Ophis, *Wagler.*

§§ Hydrina.

83. Hydrophis, *Daud.*
Sub-genera, 4.
84. Disteria, *Lacep.*
85. Aipysurus, *Lacep.*

Third Sub-Family.

VIPERIDÆ.

§ Viperina.

86. Vipera, *Daud.*
Sub-genera, 4.
87. Sepedon, *Merr.*
88. Naja, *Laur.*
89. Elaps, *Schw.*
Sub-genera, 2.
90. Platurus, *Latr.*
91. Trimeresurus, *Lacep.*
92. Oplocephalus, *Cuv.*
93. Acanthophis, *Daud.*
94. Echis, *Merr.*
95. Langaha, *Brug.*

§ Crotalina.

96. Trigonocephalus, *Oppel.*
Sub-genera, 4.
97. Crotalus, *L.*
Sub-genera, 2.

Eighth Family.

CŒCILIDÆ.

98. Cœcilia, *L.*

Second Sub-Class.

AMPHIBIA.

Order IV.

ANOURA.

99. Hyla, *Laur.*
Sub-genera, 4.
100. Rana, *L.*
101. Megophrys, *Kuhl.*
102. Ceratophrys, *Boie.*
Sub-genera, 2.
103. Dactylethra, *Cuv.*
104. Breviceps, *Merr.*
105. Bombinator, *Merr.*
106. Pipa, *Lauren.*
107. Bufo, *Lauren.*
108. Rhinellus, *Fitz.*
Sub-genera, 3.

Tenth Family.

URODELA.

109. Salamandra, *Lauren.*
Sub-genera, 3.
110. Triton, *Lauren.*

Order V.

NULLIBRANCHIA

Eleventh Family

AMPHIUMIDÆ.

111. Protonopsis, *Barton.*
112. Amphiuma, *Garden.*

Twelfth Family.

SIRENIDÆ.

§ Proteina.

113. Axolot, *Cuv.*
114. Proteus, *Laur.*
115. Necturus, *Rafinesque.*

§§ Sirenina.

116. Siren, *L.*
Sub-genera, 2.

Republics. (See *Political Institutions*, and *Politics*.)

Repulse Bay. (See *North Polar Expeditions*.)

Requêtes. (See *Maître*.)

Requiem, in the Roman Catholic church; a solemn musical mass for the deceased, which begins *Requiem æternam dona eis*, &c. (See *Exequies*.) The requiem forms an important part of the beautiful Catholic church music; and the most distinguished musicians have employed their talents on it, as Mozart, Jomelli, Neukamm, and many others.

Reservation, Mental (*reservatio mentalis*), consists in this, that a person making a promise gives a different signification or interpretation in his own mind to the words of the promise, from the meaning which he to whom the promise is made will naturally attach to them, with the purpose of deception. It is always an intentional violation of the truth, and of course of the rules of morality. It was, nevertheless, permitted among the Jesuits in its greatest extent.

Reserve. The distribution of military forces is one of the most important parts of warfare. Generally speaking, they are divided into three parts: the first, the van, is destined to begin the conflict; the second, *corps de bataille*, to sustain it; the third, the reserve, has to supply fresh forces as they are needed, to support those points which are shaken, and to be ready to act at decisive moments. The composition and disposition of the reserve is of the utmost importance. It ought to be composed of the best and most experienced troops, not exposed, yet placed so that they can operate easily on all sides, and ought to be commanded by an experienced, cool, but resolute, general. Napoleon's guards, and his disposition of them, are models. They often decided the victory when the enemy felt sure of success.

Residence. (See *Domicil*, Appendix to vol. iv.)

Resin; a vegetable substance, which exudes from many trees, either from natural fissures or artificial wounds. (See *Plants*.) Common resin, or rosin, is obtained by distilling the exuded matter of some species of pine; oil of turpentine passes over, and the resin remains behind. (See *Pine*.) The resins are insoluble in water, but soluble in alcohol, and inodorous, though they sometimes derive odor from containing an essential oil. They consist chiefly of carbon, with about one quarter of oxygen and hydrogen. (See *Gum*, and *Gum Resin*.)

Respiration; the alternate inspiration and expiration of atmospheric air, for the purpose of bringing it into contact with the blood, and exchanging the hydrogen and carbon with which it is changed, for oxygen. (See these articles, and *Air*.) This function is therefore closely connected with that of the circulation of the blood. (See *Blood*, *Heart*, and *Lungs*.) The organs and mechanism by which this wonderful function is carried on, vary considerably in the different classes of animals. In the mammalia, birds (see *Ornithology*) and reptiles (q. v.), the organ of respiration is the lungs; in fish (q. v.), the gills; in most insects (q. v.), the tracheæ; and in the lower classes of animals, different parts of the system. The air, being brought into contact with the blood, is decomposed, its oxygen is united with the blood, and its nitrogen is returned by expiration, unchanged, with an additional quantity of carbonic acid gas. A part of the oxygen of the inhaled air is united in the lungs with the free hydrogen, and forms water, which is emitted in the form of vapor, visible at 40° Fahr. Another part of the oxygen unites with the superfluous carbon in the blood, and forms the carbonic acid gas, which passes off with the watery vapor. It is evident from observation, that oxygen gas is necessary to animal life. As to its manner of operating in the body after inspiration, opinions differ. Upon respiration depends also animal heat, which is greater, at least in the mammalia and in birds, than that of the surrounding element. (See *Animal Heat*.) The mechanical part of the function of respiration is effected by the action of the ribs and diaphragm. In the natural state, the ribs are inclined downwards, and when this series of movable hoops is raised by the action of the muscles, the cavity of the chest is enlarged. The descent of the diaphragm (q. v.) by its contraction increases this effect, and the air therefore rushes in to fill up the vacant space: the ribs then descend, and the diaphragm rises, and the air is necessarily driven out in consequence of the resulting contraction of the chest. About twenty respirations take place in a minute, and from thirty to forty cubic inches of air are inhaled at each inspiration. A man consumes about a gallon of air in the same time.

Restaurant; the French name for an eating-house, where provisions may be had ready cooked at all hours. The name has become common in other countries.

Restitutio in Integrum. Where undeserved damage was suffered from the strict rules of law, or the common forms of legal procedure, the Roman pretor allowed, under certain circumstances, a dissolution of the contracts or obligations which occasioned it, and prescribed a *restitutio in integrum*; for instance, to minors, who, after their actual tutelage had expired, but before their twenty-fifth year, had entered into engagements to their prejudice; to absent persons; to those who had been influenced by fraud or threats; and, in general, whenever he found good reason for so doing (*si qua alia causa justa mihi videbitur*). The *restitutio* is, in some shape, and in certain cases, admitted into all codes. In France, actions for fraud, force, &c., are admissible for ten years after the occurrence of the cause. Actions for relief against the decisions of courts, are called there *requêtes civiles*. By the provisions of the German law, actions for restitution must be entered within four years. To support such actions, the damage suffered must have been considerable, and innocently incurred.

Restoration is used in many different applications. In the fine arts, it signifies the repairing of the injury suffered by works of art, buildings, statues, pictures, &c. Even in ancient times, statues were restored, as, during the civil wars, many were injured. Their transportation to Rome must also have often been injurious to them. When, after the repeated devastations of Rome, during the middle ages, statues were exhumed, many of the first artists were employed to restore them; for instance, Michael Angelo. (For much information on this subject, see the article *Restauration*, in Millin's *Dictionnaire des Beaux Arts*.) There are now in Italy some very skilful restorers of paintings, as Palmaroli, Pereira, and others. It often requires the eye of a perfect connoisseur to discover restorations, and not a few remarks on the character of ancient art have been founded on undetected restorations.—In politics, this word is used for the replacing of dethroned monarchs or houses, particularly the Stuarts in England, in 1660, and the Bourbons in France, in 1814 and 1815. This last restoration gave rise to the name of Mr. de Haller's work, *Restoration of Politics*. (See *Haller*.) This work is directed against the original rights of men, their equality in the eye of the law, the sovereignty of the people, and is intended to restore the theory of divine right.

Resurrection signifies sometimes the restoration of Christ from the dead, and sometimes the expected renewal of the human body destroyed by death. The credibility of the resurrection of Jesus Christ rests partly on the testimony of the apostles, and partly on this circumstance, that, without it, we cannot explain how the apostles, who saw their hopes disappointed by his death, and had lost their confidence in him, could have been inspired with a lively faith in his divine mission, and with a belief which gave them strength to preach the gospel amid danger and persecution. He who considers Christianity as a revelation, as an institution founded by the immediate act of God, cannot think it strange that it was established by miracles, and that Providence used extraordinary means to attain an extraordinary end. Of the resurrection of the body, men have often adopted the grossest ideas. In the notion itself, that Almighty Power can form, of the materials of the old body, dissolved by death, a new body, which may serve as an instrument in a new order of things, there is nothing opposed to reason.

Resuscitation. (See *Drowning*.)

Reticulated Walls. (See *Architecture*, vol. i, p. 335.)

Retina, in anatomy; a membrane of the eye, formed by an expansion of the optic nerve, and constituting the immediate organ of vision. (See *Eye*.)

Retort, in chemistry, is a kind of round-bellied vessel, made of earth, glass, or metal, having a crooked neck or beak, to which the recipient is fastened. Retorts are of essential service in distillations, and most frequently for those which require a degree of heat superior to that of boiling water.

Retrenchment, in the art of war; any kind of work raised to cover a post, and fortify it against the enemy. (See *Intrenchment*.)

Retrocession of the Equinoxes. (See *Precession of the Equinoxes*.)

Retz, Jean François Paul de Gondi, cardinal de, was born at Montmirail, in 1614, and, contrary to his own inclinations, was designed by his father, general of the galleys, for the church. His instructer was the celebrated St. Vincent de Paul. In 1643, he received a doctorate at the Sorbonne, and was appointed coadjutor of the archbishop of Paris. Although earnestly desiring to enter the military service, Gondi was too politic and ambitious not to bring his talents into action in the career forced upon him; and, although levity and vivacity led him to commit many actions very inconsistent with his station—his numerous amours, and affairs of honor settled by the young abbé with the sword—yet his impassioned eloquence won him the favor of the Parisians, and often served to appease the indignation of the clergy. His talents and address, together with his evident ambition of political distinction, which too often degenerated into cabal against the court party and the ministers, could not fail to draw the attention and excite the hatred of the all-powerful Richelieu, and, after his death, of Mazarin. The Fronde (q. v.), or the party opposed to the court and Mazarin, received the coadjutor as a man whose genius and popularity made him a valuable accession, and De Retz embraced their cause with zeal. The intrigues which agitated the court, the various insurrections of the people and the Frondeurs, &c., offered him a wide field for the execution of his projects, and, when the court finally saw itself compelled by a decree of the parliament to release the prince Condé (q. v.), and Mazarin himself (see *Mazarin*) was obliged to leave France, De Retz seemed to have attained his object, and to have it in his power thenceforth to hold the reins of government. But Mazarin soon returned from his banishment, more powerful than ever. The Fronde, which had never been firmly united, and the members of which, with the exception of Condé and De Retz, were weak and wavering, was dissolved; and, soon after, the latter, by the mediation of the court, and not without the management of his enemy Mazarin, had obtained the cardinal's hat, the storm which had just before threatened Mazarin burst upon him. At the command of the court, or rather of Mazarin, he was suddenly imprisoned in the castle of Vincennes, whence he was removed to Nantes. Here he found means to escape, and, perpetually pursued by the minions of Mazarin, wandered for nearly eight years through Spain, Italy, Holland, Germany and England, meeting with a series of truly romantic adventures. In pope Innocent, he found a powerful support; and his death was a heavier loss to Retz, as his successor Alexander, who was in some degree indebted to him for his elevation, gave him no assistance. In addition to his early extravagance and profuseness, the enormous burden of his debts was daily increased by the expenses of a princely retinue, with which he surrounded himself, partly from love of pomp, partly for protection against the persecutions of his enemy. This debt amounted to 5,000,000 livres, when Retz repaired to Holland by way of Germany. Here he dismissed the mass of his attendants, but, chagrined by his misfortunes, plunged into a course of excesses. The offers of the Spanish court, of an asylum and support, he rejected; those of Charles II he accepted, and proceeded to England. But, as that monarch was not disposed to follow his counsels, De Retz returned to the continent, where the peace of the Pyrenees, concluded between Spain and France, opened to him a gleam of hope. But his situation was, nevertheless, so distressing, that he was on the point of printing a description of his circumstances, and of the hatred of his enemies, to be sent to the higher clergy of all countries—a proceeding from which he was only restrained by the information that his enemy Mazarin was on the point of death. But, even after the death of Mazarin, in 1661, he was not allowed to return, till he had solemnly promised never to take part again in political combinations. From this time he seemed to be a different person, and appeared before the throne with the language of a flatterer. When Louis XIV said to him, "Cardinal, you have grown gray," he replied, "Sire, one grows gray quick, who is under the displeasure of your majesty." He now resigned his archbishopric, governed the abbey of St. Denis, lived retired, restricted his wants, paid his immense debts, and, besides, distributed pensions to his friends. Reconciled with all parties, the man whose comprehensive mind had hitherto taken pleasure only in the tangled web of politics, now lived quiet and retired like a philosopher. "Cardinal de Retz," says Rochefaucault, "has much elevation of mind, but more ostentation of courage than true courage; an extraordinary memory; readiness and elegance of expression. He seems ambitious, without being so; and his attacks upon Mazarin were aimed less to subvert the latter, than to render himself formidable and important to him. His imprisonment he bore with firmness, and he owed his freedom to his own boldness. As long as Mazarin lived, he maintained his archiepiscopal see, unshaken by all the vicissitudes of fortune; when his enemy was no more, he voluntarily resigned it. As a cardinal, he gained respect by his conduct in several conclaves. Although he had a strong propensity to pleasures and idleness, yet his activity was really astonishing as soon as it was awakened by circumstances. The presence of mind, with which he was able to understand and turn to advantage the most unlooked for circumstances, is worthy of admiration." His posthumous *Mémoires* (Cologne, 1718, 3 vols.) give an interesting picture of his character. A history of the conspiracy of count Fiesco, in Genoa, which he wrote while a youth of seventeen years of age, with a visible predilection for his hero, shows the tendency of his mind—a fact which did not escape the notice of cardinal Richelieu, when he first saw this youthful production. In the last years of his life, he rarely went to Paris. He died in that city in 1679. Some years before his death, he returned his cardinal's hat to Clement X, for the sake, as he said, of withdrawing wholly from the world; but he received it back, with the command of the holy father to retain it. See St. Aulaire's *Histoire de la Fronde* (Paris, 1827, 3 vols.).

Retzsch, Maurice, professor in the royal academy of Dresden, was born in Dresden, Dec. 9, 1779, and descended from a family of Protestant Hungarian refugees. He and his brother drew much together, but without regular instruction, until 1798, when he studied in the academy. The melancholy state of Germany from 1806 to 1814, prevented him from visiting Italy. During this period, he was the chief stay of his family. Retzsch is an enemy to all imitation, and has chosen his subjects from the little explored field of romantic poetry. In 1812, he designed twenty-six illustrations for Göthe's Faust, which have been copied in London and Paris. In 1816, he painted two altar pieces. In 1827, he began his gallery of illustrations of Shakspeare's dramatic works, published by Fleischer, in Leipsic, in 4to. As a portrait painter, he is also very successful. In 1824, he was made professor in the academy of Dresden by the king of Saxony.

Reuchlin, John (called also, in allusion to the signification of his name, *Capnio*), was born at Pforzheim, in 1455, of respectable parents. He distinguished himself at school by his industry and good conduct; and the excellence of his singing procured him a place in the chapel of his prince, Charles, margrave of Baden, who appointed him companion, on his travels, to his son Frederic, afterwards bishop of Utrecht. In 1473, Reuchlin accompanied that prince to Paris, to study there in the most celebrated school of the times. He was obliged to leave Paris again, in 1475, with the prince. In Bâsle, he excited the astonishment of his countrymen by his knowledge of languages, at that time unparalleled, displayed in his Latin dictionary (under the title *Breviloquus*), and his Greek grammar, both the first published in Germany. In 1478, he went back to France, studied law at Orleans, while he taught, at the same time, the ancient languages. In 1481, he returned to Germany, and taught law and the belles-lettres at Tübingen. Eberhard, count of Würtemberg, soon after took him, as the best Latinist in Germany, in his train, on an embassy to Rome. The treasures of science, which Lorenzo de' Medici had accumulated in Florence, and those of Rome, were thus opened to the curiosity of Reuchlin. The emperor Frederic III created him a noble of the empire in 1492. After Eberhard's death, Reuchlin lived several years at the court of Philip, elector of the Palatinate. Here he enriched the Heidelberg library with manuscripts, and productions of the new art of printing. The elector having been basely calumniated at the Roman court, and even excommunicated, Reuchlin repaired again to Rome, and defended the rights of his prince with equal prudence and eloquence. He was subsequently appointed president of the court of the confederacy, which had been established by the Suabian princes against the encroachments of the house of Bavaria. He was also engaged in translating the penitential psalms, preparing a Hebrew grammar and dictionary, and correcting the translation of the Bible. His agency in introducing his relative Melancthon into the field, where he eventually exerted himself so beneficially in conjunction with Luther, places Reuchlin among the contributors to the reformation. But in an age in which ignorance and priestcraft prevailed, he could not fail of having enemies. A converted Jew, John Pfeffercorn, and one Hoogstraten, were the instigators of these blind zealots in their attacks upon Hebrew literature. They persuaded the emperor Maximilian that all Hebrew works, the Old Testament only excepted, were of bad tendency. In 1509, the emperor issued a decree, ordering all such works in his dominions to be burned; but he added, that the opinion of a secular scholar might, in all cases, be consulted: this saved the Oriental literature. Reuchlin assured the emperor that these works, instead of injuring Christianity, contributed, on the contrary, to its honor and glory, since the study of them produced learned and bold champions to fight for the honor of the Christian religion, and that to destroy these books would be to put arms into the hands of its enemies. This measure of Reuchlin served to exasperate his enemies still more. A war of pens raged for ten years. On one side were Hoogstraten and the universities of Paris, Louvain, Erfurt and Mentz; on the other, Reuchlin and the most learned and enlightened men of all countries. Unmoved amid the revilings and excommunications of his opponents, Reuchlin finally brought this dispute before the pope, when Maximilian, regretting that he had given rise to so unhappy a controversy, declared in favor of Reuchlin. Francis von Sickingen and Ulrich von Hutten avowed themselves ready to use the sword in this contest, in case it should be necessary. About the same time appeared the *Epistolæ Obscurorum Virorum* (q. v.), in which Reuchlin's enemies were rendered ridiculous. This gave the matter another turn; the umpire appointed by the pope, the archbishop of Spires, decided for Reuchlin. Reuchlin subsequently resigned his judicial station, to avoid being compelled to give a decision against his prince, duke Ulric, who had precipitately attacked the city of Reutlingen. William of Bavaria appointed him professor in the university of Ingolstadt. The plague having broken out in Ingolstadt, in 1522, he removed to Tübingen, where, retired from state affairs, he again devoted himself to study. He died at Stuttgard, June 30, 1522.—See Meiner's *Account of the Life of Reuchlin* (in German).

Reuss; a sovereign principality in the central part of Germany, lying between the Thuringian forest and the Erzgebirge, bounded north by Saxe-Weimar, east by Saxony, south by Bavaria, and west by Saxe-Meiningen and Schwartzburg-Rudolstadt. It is divided between the elder line, Reuss-Greitz, with a population of 24,100 (capital Greitz, 6300 inhabitants), and the younger line, Reuss-Schleitz (capital Gera, 8000 inhabitants), with a population of 57,690; total, 81,790, on 600 square miles. Each of the princes has a vote in the Germanic *plenum*, and the two principalities, in union with Hohen-Zollern, Liechtenstein, Waldeck and Lippe, have the sixteenth vote in the ordinary assembly. (See *Germanic Confederation*.) Contingent of troops to the army of the confederacy, 744 men: revenue of the elder line, $60,000; debt, $80,000: revenue of the younger line, $200,000; debt, $280,000.

Revel, or **Reval**; a Russian naval station, the capital of the Russian province of Esthonia, on the gulf of Finland, 200 miles south-west of Petersburg; lat. 59° 26′ N.; lon. 24° 39′ E. It is built in an old style, with narrow and irregular streets; population, 13,000. Revel contains thirteen churches, an imperial palace, with public gardens, several hospitals, an arsenal, &c. The harbor, constructed in 1820, is deeper than that of Cronstadt, but is more difficult to be entered: the road, which is sheltered by islands, allows of vessels sailing with any wind. Revel was one of the Hanse towns. It was conquered by the Swedes in 1561, and taken by Peter the Great in 1710. The inhabitants are Swedes, Finns, Esthonians and Russians.

Revellière-Lépaux, Louis Marie la, one of the members of the French directory, born at Montaigne, in 1753, on the breaking out of the revolution, the principles of which he embraced, became a member of the constituent assembly, and, in 1792, of the convention, where he opposed the violence of the terrorists. He was afterwards named one of the directory (q. v.); and having, in a memoir read before the institute, of which he was a member (*Réflexions sur le Culte, les Cérémonies Civiles, et les Fêtes Nationales*), recommended some religious ceremonies and principles which resembled those of the theophilanthropists (q. v.), he was, by his enemies, represented as the founder and high-priest of that sect. He refused to take the oath of allegiance to the emperor, and still later to accept the offer of a pension, on condition of his making application for it. He died in 1824, leaving *Mémoires*, to be published after a given time

APPENDIX.

Napoleon Bonaparte[*] was born Aug. 15, 1769, at Ajaccio, in the island of Corsica, and was the second son of Charles Bonaparte, a Corsican nobleman,[†] and Letitia, his wife, whose maiden name was Ramolini. (See the article *Bonaparte.*) His father was desirous to have him educated at one of the military schools in

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[*] Indifferently written *Bonaparte* and *Buonaparte*, in the same documents, and speaking of the same person. The former spelling was adopted by Napoleon, when his name began to acquire celebrity; and in this he conformed, like the rest of his family, to the spelling in the letters patent of the supreme council of Corsica, dated Sept. 13, 1771. These were in confirmation of an instrument by which the Bonaparte family of Florence, one of the most ancient families of Tuscany, declared its origin to be the same with that of Charles Bonaparte. The council wrote the name in this way in order that the French pronunciation might come nearer that of the Italians, who write similar names indifferently *Buo* and *Bo*, and make no difference in the pronunciation. Take, for instance, *Buonarotti*, or *Bonarotti*; *Buoncompagni*, or *Boncompagni*; and many others. We should not have dwelt on this point, but that some writers affectedly retain the *u*; as if Napoleon had not a right to spell as he pleased the name which he himself made illustrious.

[†] The following account of Napoleon's ancestry is from authentic documents; and the stories of his descent from one of the Byzantine emperors, as well as those which represent the Bonaparte family as very obscure, are equally void of truth. In 1120, a Bonaparte was exiled from Florence as a Gibeline *ob nimiam potestatem*. (See the book *Del Chiodo* of Florence.) In 1170, Curado Bonaparte was knight of the golden spur. 1210, James Bonaparte was knight of the golden spur. 1250, Bonaparte, syndic of Ascoli, was named commissioner to receive the submission of Monte-Gallo. 1272, Nordilius Bonaparte was *podestà* of Parma. 1279, Bonsemblant Bonaparte, his brother, was plenipotentiary to negotiate peace between Treviso and Padua. 1285, Peter Bonaparte was *podestà* of Padua. He overthrew the tyrannical government of the princes Caminesci. 1296, John Bonaparte was named commissioner to negotiate peace with Carrara. 1314, John Bonaparte was ambassador to the government of La Marca. 1333, John Bonaparte was *podestà* of Florence. 1404, John Bonaparte was plenipotentiary to Gabriel Visconti, duke of Milan. He married the niece of pope Nicholas V. 1440, Cæsar Bonaparte was elected chief of the elders of the city of Sarzana. 1454, Nicholas Bonaparte was ambassador from pope Nicholas V to several courts, and vicegerent of the holy see at Ascoli. 1527, James Bonaparte wrote a history of the sack of Rome. He was attached to the court of Rome, and an eye-witness of the sack. 1567, Gabriel Bonaparte established himself at Ajaccio, receiving several privileges from the republic of Genoa. 1571, Jerome Bonaparte was elected chief of the elders, and deputy of the city of Ajaccio to the senate of Genoa. 1614, Francis Bonaparte was elected captain of the city, and one of the elders. 1648, Sebastian, Charles, Joseph, Sebastian, Joseph Bonaparte were successively heads of the elders of the city of Ajaccio from 1648 until 1760. Napoleon Lomellini was the godfather of Sebastian, and introduced the name of *Napoleon* into the Bonaparte family. Charles, son of Joseph, born in 1746, at Ajaccio, died at Montpellier, in 1785, was a member of the states of Corsica, and a deputy from that assembly to the French court in 1777. In 1830, Napoleon Louis Bonaparte, son of Louis Bonaparte, ex-king of Holland, a young man of promise lately deceased (see the end of the article *Joseph Bonaparte*, Appendix to vol. vii), published at Florence a translation of the above-mentioned account of the sack of Rome, with some historical notices of the Bonaparte family prefixed. There is a mistake, however, in those notices. It is said that Louis Mary Fortunatus Bonaparte went to Corsica in 1612, and, settling at Ajaccio, became the founder of the Bonaparte family in Corsica; whereas, in fact, Francis Bonaparte, of Sarzana, went to Corsica in 1512, and his son Gabriel, above mentioned, founded the family at Ajaccio. It is, however, indifferent whether Napoleon was descended from an emperor or a cobbler. He himself had little pride of ancestry. In the year 1807, the municipality of Treviso having laid before him a collection of documents which showed the importance of his forefathers in that city, he replied, "Every man, in this world, is the child of his own actions: my titles, moreover, I hold from the French people."

France. Of his early education, under the eye of his mother, we have no account. Some anecdotes in the *mémoires* of the duchess of Abrantes, relating to this and a later period of his life, have been shown to be unfounded. The character of the Bonaparte family was patriotic, and they were intimate with the family of the celebrated Paoli (q. v.) until the death of Louis XVI, when Paoli declared himself warmly against the convention. Thus the early impressions of Napoleon were favorable to liberal and patriotic feeling. Through the influence of Leopold, grand-duke of Tuscany, who recommended Charles Bonaparte to his sister, the queen of France, and by the support of the count de Marbœuf, governor of the island of Corsica, Napoleon received a place in the royal military school at Brienne, in 1779, where he remained until 1784. During his stay there, his conduct is represented as having been unexceptionable. He seems to have cultivated mathematics more than any other branch of study. He was fond of the history of great men, and Plutarch seems to have been his favorite author, as he is with most young persons of an animated character. For languages he manifested little taste. He made himself well acquainted with the French classics. From the military school at Brienne, he went with high recommendations to that of Paris. In 1786, he commenced his military career, being appointed in that year *lieutenant en second* in the regiment of artillery La Fère, after a successful examination, one year after the death of Charles Bonaparte, his father. While at the school in Paris, young Bonaparte expressed a decided dislike of the discipline and mode of living there, which he thought by no means fitted to prepare the pupils for the privations of a military life. Not long after, he attended affectionately to the education of his brother Louis (see *Louis Bonaparte*), as the latter tells us in his *Réponse à Sir Walter Scott*. When he was twenty years old, the French revolution removed the barriers to his great career. Belonging to a patriotic family, he was naturally excited by the struggle for liberty in France. He corresponded with Paoli, then in England. In 1790, Paoli went to Paris, was presented to the constituent assembly by Lafayette, and received in the capital all the honors which the lovers of liberty could bestow on its defender. Napoleon, being, at this time, in Corsica, on a furlough, showed himself a zealous partisan of this friend of his deceased father. In 1792, Paoli, having returned to Corsica, was made lieutenant-general in the service of France, and commander of the twenty-third division. Napoleon was at Paris at the epoch of the 10th of August. In September, he returned to Corsica. Vice-admiral Truguet, charged with the conduct of an expedition against Sardinia, arrived at Ajaccio, and Bonaparte was ordered to join the expedition, which proved unsuccessful, and he returned to Ajaccio. Paoli had, meanwhile, been proscribed, with twenty other generals, as a traitor, and a price was set on his head. In May, 1793, Paoli raised the standard of revolt to secure his own safety, and throw off the yoke of the convention. He assembled a *consulta* of the Corsican malcontents, the secretary of which assembly was Pozzo di Borgo (at present, Russian ambassador in Paris). Bonaparte openly opposed the views of Paoli, and a war broke out between the adherents of that leader and those of France. Many excesses were committed, and Paoli went so far as to make attempts upon the persons of young Bonaparte and his family. He succeeded, however, in conducting them safely to France, where they retired to La Valette, near Toulon, and, at a later period, to Marseilles. In the same vessels with the Bonapartes were the commissioners of the convention and the French troops. It was the persuasion of Joseph Bonaparte, one of the members of the departmental administration at the time of Paoli's revolution, that engaged his family in the French cause, and thus had an important influence on the future career of his brother. Bonaparte proceeded to Nice, to join the fourth regiment of artillery, in which he had been made captain. We are now arrived at the period of 1793 and 1794, when the Mountain party developed its energies with an unexampled rapidity, by an equally unexampled system, and, finding no foundations for a rational liberty on the first emersion of the country from the corruption and tyranny of centuries, strove to save it by terrorism. Terror was to silence its adversaries, glory to win it friends. Foreign enemies also contributed to develope the power of France. Fourteen armies were raised, and the victorious legions of Rome became the exemplars of the republican warriors, who thirsted for glory and vengeance. Such a state of things would naturally awaken a strong excitement in young Bonaparte, a soldier whose age and profession would alone make him eager for distinction.

His subsequent proclamations show that he viewed the French armies in the light of triumphant Roman legions. Lyons was destroyed, after 4000 of the inhabitants had been shot by order of Collot-d'Herbois and Fouché, as a testimony of the vengeance of the convention "coming like the thunders of heaven;" Toulon was doomed to suffer a similar fate. The commissioners in the south were Salicetti, Albitti, Fréron, Ricord, the younger Robespierre, and Barras. Treachery had opened the gates of Toulon to the English, Spanish and Neapolitans, August 27, 1793. Louis XVII had been proclaimed king, and the French ships delivered to the enemy. Bonaparte received the command of the artillery, at the siege of Toulon, in the place of general Dutheil, who was taken sick. In a council of war, he showed the necessity of occupying the fort L'Eguillote, called *Little Gibraltar*, on account of its favorable situation. His advice was followed, and Toulon was taken. The English, before evacuating the place, set fire to the town as well as to the French ships; but the galley slaves, who had been released, extinguished the flames, and saved some of the vessels. It is probable that the enmity, which Bonaparte manifested against the English during all the period of his power, was in some measure owing to the impression made upon him by their conduct at Toulon. December 19, the day of the taking of Toulon, the commissioners appointed him general of brigade and commander of the artillery of the army of Italy; he having been previously made major, when he received the command of the artillery employed in the siege. The 9th Thermidor (27th July) overthrew the reign of the terrorists, and general Bonaparte was arrested by order of Salicetti and Albitti, because the younger Robespierre and Ricord, who were proscribed on the occasion of this revolution, had placed the greatest confidence in the young officer. A guard was stationed at his door, and his papers were seized; but in a fortnight he was set at liberty and restored to his command, either because his innocence was manifest, as he had acted only in the quality of a soldier, or because his military talents had already rendered him indispensable. General Bonaparte next served under general Dumerbion in Piedmont, who, after the battle of Cairo (in Piedmont), acknowledged, in a letter to the commissioners, that he owed to the young officer the skilful combinations which had secured the victory. Bonaparte urged the necessity of advancing into Piedmont and conquering Italy, according to the plan which he executed at a later period; but the commissioners would not listen to his proposition. Aubry, who was then president of the military committee, recalled him from the army of the south, and offered him a place in the line, taking him from the artillery. General Bonaparte went to Paris to complain of this injustice, and lived there in retirement until Aubry, who, from jealousy or some other cause, was ill disposed towards him, was succeeded by M. Pontécoulant. The latter employed the young general to assist the committee in drawing up the plan of the campaign. When first consul, Bonaparte gratefully called M. Pontécoulant into the senate, as soon as he was of lawful age. Bonaparte always retained his rank of general of brigade in the line (Aubry having taken from him only the artillery). After remaining some time in Paris, he again joined the artillery. The cast which the political notions of Bonaparte received from the stormy character of the period in which he was educated, and at which he commenced his career, is apparent in much of his future conduct: he never had the good fortune to see the calm operation of peaceful liberty—the happy developement of the elements of a free government. At this period, he became acquainted with Madame de Beauharnais, for whom he conceived an ardent passion. (See *Josephine.*) The 13th Vendémiaire changed his situation. On this day, the *sections* of Paris rose against the convention. Barras commanded the troops of the latter, and, remembering the services of Bonaparte at the siege of Toulon, he appointed him general of division. This appointment secured the victory to the convention; the constitution of the year III established the directory, and Bonaparte was made chief of the army of the interior, in the room of Barras, who had been elected a director. At the house of Barras he often saw the *citoyenne* Beauharnais, whom he married March 9, 1796. Five months after the day of the sections, he was appointed by Carnot (q. v.) general-in-chief of the army destined for Italy. At the time when the way was thus opened for his brilliant career, he was but twenty-seven years old. March 30, 1796, he succeeded Scherer in the command at Nice. This appointment to a command so vitally important to the interests of France, conferred by Carnot, the tried republican, who had no object but the welfare of his country, was, perhaps, the greatest tribute ever paid to the genius of Bonaparte. The coalition (q. v.) at that time existing against France was formidable; it was composed of England, Austria, Piedmont, Naples, Bavaria, and all the minor states of Germany and Italy; but France really made war against Austria, which it was determined to attack chiefly in Italy. The conduct of this war was intrusted to general Bonaparte, who left Paris a few days after his marriage with Mad. de Beeuharnais, to whom he ever continued tenderly attached. He now followed that plan which, a year previously, had been rejected by the commissioners. Arrived at Nice, his head-quarters, the young general had first to obtain an influence with veteran officers, already distinguished by a series of successes—Augereau, Masséna, Laharpe, &c. The army was young, enthusiastic and victorious; but without money, provisions, clothes, and almost without arms, destitute of artillery, and poorly disciplined. With such an army, under such circumstances, he had to encounter numerous, well provisioned, well disciplined forces, who commanded all the resources which were wanting to the French. The position of the French army in the rocks of Liguria was dangerous; Bonaparte saw that nothing could save them but victories. His proclamations to his soldiers, admirably calculated to excite their enthusiasm, pride, and feeling of honor, had a striking effect; and, like Frederic the Great, he astonished his enemies by a new system of tactics. Within six days, in which victory followed victory, obtained by manœuvres not less scientific than bold, he separated the Piedmontese and Austrian armies, reduced 12,000 Austrians to inaction, took forty cannons, became master of the fortresses of Coni, Ceva, Tortona and Alexandria, and obliged the king of Sardinia to sue for peace. The eyes of all Europe were now turned upon the youthful general, and the officers of the hostile armies themselves acknowledged the superiority of his system of concentration. Masséna, Augereau and Joubert distinguished themselves in this campaign; but the superiority of Bonaparte was so decided, that jealousy was silent, and his soldiers began to adore him; in fact, no commander ever took more care of his soldiers. He had next to conquer Upper Italy, of which Mantua is the key. That place was considered impregnable, and Salicetti, commissioner of the directory, and Berthier, chief of the staff, opposed his project of besieging it; but he determined to take it before the Austrians should be able to throw a strong garrison into the place. Bonaparte finally relinquished his plan; but he afterwards found that his calculation had been correct, and he resolved henceforth to trust to his own genius alone. By the treaty of Turin, Valenza had been ceded to him; but his object in obtaining this cession was merely to attract the attenion of the enemy to that point, whilst he marched rapidly upon Piacenza, passed the Po, and advanced upon Lodi, where a long and narrow bridge crosses the Adda. The celebrated battle of Lodi was fought on the 10th of May, in which the personal courage of Bonaparte was conspicuous. (See *Lodi.*) Masséna and Berthier particularly distinguished themselves. The capture of Lodi made Bonaparte master of Lombardy; but he could not, as he desired, carry the war into Germany, by the way of the Tyrol, without the possession of Mantua. His correspondence with Carnot and the directory at this time shows not only the ardent general, but the sagacious politician. He was desirous to coöperate with the army of the Rhine, and to sign a peace in the heart of Bavaria; but the directory threw obstacles in his way; they were even jealous of the armistices which he concluded, and formed the project of dividing the army in Italy between him and Kellermann, which deeply wounded his feelings. In his letters to Carnot and the directory, these feelings are expressed with spirit, and he obtained his object. He was left to conduct the war in Italy alone, and Kellermann received the command of the country, and the places ceded to France by the treaty of Turin, signed on May 18, by the directory. Bonaparte's attention was now directed to the conquest of Mantua, and the arrangement of political affairs in Italy; but, insurrectionary movements breaking out in many places of Lombardy, he was obliged to resort to military executions. Towards Venice and Genoa he conducted with the sagacity of an experienced statesman. On the 14th of May, he entered Milan, where he found 150 cannons. Heavy contributions were levied, part of which, with many of the finest works of art, were sent to France, and part were appropriated for the support of the armies of the Rhine. In the mean time, Bonaparte had passed the Mincio, and driven Beaulieu out of Italy; Masséna occupied the attention of the Austrians in Tyrol; Serrurier blockaded Mantua; Augereau passed the Po, and obliged the pope to sign an armistice.

with Vaubois, who advanced to Leghorn, and took that important place from the British. Thus the little army of Bonaparte commanded Italy from the Alps to the papal dominions. Naples, Modena and Parma had hastened to conclude peace, but Mantua was not yet taken. Wurmser, the Austrian general, was on the march, with a large army, to relieve Mantua; but, fortunately for Bonaparte, the Austrian forces were divided, and he immediately resolved to beat them separately. He drove back one part of the Austrian army under Quosdanowich into Tyrol, and defeated Wurmser, in the famous battle of Castiglione (August 5, 1796). Augereau, having rendered important service in this battle, was afterwards made duke of Castiglione. (See *Augereau.*) Bonaparte pursued the enemy to Tyrol; Wurmser, however, found means to reach Mantua. Meanwhile two republics were formed on the two banks of the Po, under French protection. The English were driven from Corsica, and Venice, Genoa and the pope compelled to remain neutral. In Germany, Austria was more successful than in Italy, which she resolved to recover at any price. Reinforcements were sent to the garrison of Mantua. Bonaparte's forces were much diminished, but his genius and activity rose with the danger. With the divisions of Augereau and Masséna, he marched upon Ronco, threw a bridge over the Adige, and, with the two above-named generals and Lannes by his side, fought the battle of Arcola, which lasted three days (from October 15 to 17). It was here that, in order to force the passage over the bridge, he seized a standard, and, in the midst of a murderous fire, took the lead: his aid-de-camp Muiron was killed upon his body; Lannes was wounded; but in spite of the greatest exertions, he could not obtain his object; and he suddenly decided to return to Ronco, concealed his march from the enemy, and the next day attacked the strongest of the three divisions of the Austrian army, and was victorious. He followed the same plan with the second division, and Wurmser, commanding the third, had only time to shut himself up in Mantua. A new army descended from Tyrol under Alvinzi and Provera, but was beaten at Rivoli, Jan. 14, 1797, where Masséna decided the fate of the day, for which he afterwards received the title of duke of Rivoli. (See *Masséna.*) After gaining several minor victories, and shutting up Wurmser in Mantua, that fortress, considered impregnable, was itself taken, February 2, and the contest of Italy was decided. The battles of Rivoli and Favorita, and the capture of Mantua, cost Austria 45,000 men killed and taken, and 600 cannons. On the same day that Mantua was captured, after having proclaimed the truce with the pope, who had been making preparations against France, to be at an end, he entered the papal territories, defeated the papal troops on the Senio, took Faenza, and soon after, Ancona, Loretto and Tolentino. February 19, the pope concluded the peace of Tolentino on hard terms, which left him the States of the Church beyond the Apennines. Bonaparte was now enabled to wage war with Austria on her own soil. The archduke Charles had fortified himself behind the Tagliamento. While the French army of the Rhine threatened Germany, Bonaparte crossed the Piave, and, on the 16th of March, forced a passage over the Tagliamento and Lisonzo. On the 19th, he took possession of Gradisca; on the 20th, of Gortz; and, on the 23d, of Trieste. By the end of the month, most of Carinthia and Carniola, and a part of Tyrol, were conquered. At a favorable moment, Bonaparte entered into negotiations with the archduke Charles, and, April 7th, granted the Austrian deputies, at his head-quarters at Judenberg, an armistice of six days. His situation, however, was highly critical: in front he was threatened by the Austrians, strengthened by reinforcements of militia and volunteers, who had already made themselves again masters of Trieste, and liberated Tyrol. In Italy, new insurrections were breaking out. He therefore concluded preliminaries of peace, April 18, at the castle of Eckenwalde, near Leoben, by which the Austrians were compelled to make great sacrifices, while the French were again put in possession of Trieste, and allowed to execute their views on Venice. Bonaparte had already (May 3) made a declaration of war against the republic of Venice, and demanded the abolition of the ancient constitution. In vain did the senate exculpate itself from its violation of neutrality; in vain was the old constitution of the republic abolished (May 12), and a hasty democratic constitution established. The Venetian territories and the capital continued to be occupied by the French. In May, Genoa also was revolutionized, and, June 6, received a French constitution, as the Ligurian republic. On the 29th, Bonaparte proclaimed in Milan the new Cisalpine republic, with which he united the Cispadane republic. Lucca saved itself by repeated contributions. The king of Sardinia, after a dearly-bought peace, had formed a close connexion with France. At this early period, Bonaparte collected a Polish legion (see *Polish legions*), and sought to extend his connexions even to Greece and Egypt. Meanwhile he supported his army entirely at the expense of the conquered countries, especially of the Venetian Terra Firma, and sent numerous works of art to Paris. He now went, with threats of war, from Milan to Udina, where (September 1) he opened negotiations for peace with Austria. October 17, the definitive peace of Campo-Formio (q. v.) was concluded, depriving Austria of Belgium and its finest Italian provinces, with secret articles, taking from the German empire the left bank of the Rhine. On the other hand, Austria had already (in June) taken possession of the Venetian provinces Istria and Dalmatia. Bonaparte now ceded to these provinces Venice and the main land of the republic, as far as the Adige, entirely on his own authority, so great was already the power which his genius had procured him. In the peace of Campo-Formio, the negotiations were carried on directly by Austria and Bonaparte. The directory now appointed Bonaparte, with Treilhard and Bonnier, deputies to the congress of Rastadt. (See *Congress.*) Scarcely had he begun the negotiations there (November 25), when he left Rastadt (December 2), and hastened to Paris. Here he soon perceived the insincerity of the directory in their marks of esteem towards him: trembling for their power, they wished to occupy and remove the ambitious general. He received the chief command of what was called the "army of England," which, however, was intended for Egypt. It is not certain who first projected this expedition. A fleet was very speedily collected at Toulon, with more than 30,000 chosen troops, and set sail May 19. Bonaparte was perhaps carried to Egypt by the hope of shaking the British power in India, of making Egypt a colony, rendering France mistress of the Mediterranean, and of finding such scope for his energies as Europe did not, at that moment, offer. The plan had been agitated under Louis XIV. (See *Egypt, Campaign in.*) The capture of Malta (June 12, 1798) and of Alexandria (July 2) were the first results of this expedition. The victory over the Turks (July 25, 1799) and the recovery of Aboukir (Aug. 2) were Bonaparte's last achievements in Egypt. He was unable to execute the extended views which he had formed respecting Egypt by the establishment of a permanent colony.* His brother Joseph informed him of the critical state of the republic. Sieyes had selected him for the redeemer of humbled France. The conviction, moreover, that France could no longer exist without a man at the helm, who was at once able to repel foreign enemies and establish domestic order, was universal. (See the article *Otranto.*) Having hastily taken the resolution to return to Europe, he gave up the command to general Kléber, and, promising to revisit Egypt with additional forces, he embarked, with Lannes, Murat, Berthier, Andréossy, Bourrienne, Gantheaume, Marmont, Lavalette, Berthollet and Monge, August 23. Escaping the English cruisers, he arrived (September 30) at Ajaccio, where he was detained by unfavorable winds. October 9, he landed at Frejus. He proceeded, in a sort of triumph, to Paris, which he entered October 14. The Parisians welcomed his appearance with rejoicings. But those who would gladly have kept him at a distance, and feared his presence, assembled in consternation. Well might Bonaparte make it a matter of reproach to the directory, that he had left the republic victorious and powerful, and found it vanquished and feeble. (See *France.*) The demand for a change of government was universal. Barras, it is said, wished to restore the monarchy, and calculated on the assistance of Bonaparte. Sieyes, on the contrary, aimed at elevating the republic by means of Bonaparte. But he saw deeper than either of them, and guided the course of the conspiracy according to his own views. The council of the ancients committed to him the command in chief of the troops, with unlimited power to protect the national representation. He swore fidelity to the republic, and, on the 9th November (18th Brumaire), 1799, overthrew the directorial government. On the 10th, the council of the ancients, and that of the five hundred, met at St. Cloud. In the latter, the cry of the republicans, "No dictator! Down with the dictator!" was raised. On this, Bonaparte entered the hall with several grenadiers. He was seized by the collar; but no dagger was, as he pretended, aimed at him.† Bonaparte then withdrew. Lucian immediately resigned the presidency, hastened to the general, and exported the troops to disperse the five hundred. The grenadiers entered the hall at the command of Bonaparte, but stopped a moment, while a member of the council (general Jourdan) warned them that they were guilty of a violation of the rights of the representatives of the people. They then advanced, with fixed bayonets, and drove the council from the hall, general Leclerc, their commander, crying out, "In the name of general Bonaparte, the legislative council is dissolved; grenadiers, forward!" Thus ended the constitution of 1795. On the same day (November 10), Lucian, as president, assembled the few members of the council who were privy to the conspiracy, and decreed the abolition of the directory, and the appointment of three provisional consuls (Napoleon Bonaparte, Sieyes and Roger Ducos), who entered upon office November 17. The fourth new constitution of the republic was hastily completed, and promulgated on the 15th December (22d Frimaire). Bonaparte was appointed first consul for ten years, with powers such as few constitutional kings possess. With him were joined two consuls, with comparatively little power. From this time, Bonaparte's line of policy unfolded itself more distinctly. To establish order, a firm government, and a regular administration of justice, was the chief aim of his domestic, and the humiliation of the enemies of France that of his foreign policy. He selected from those around him the most useful instruments of his plans, and the most distinguished men, such as Talleyrand and Fouché. The list of emigrants was closed, and peace was promised to the people. The first consul declared war, indeed, on the 28th December, on all the enemies of the republic; but, on the following day, he proffered peace to the king of England; but the proffer, made contrary to the usual forms, was refused. The German empire, Russia, Naples, and the Porte, were still in arms. Under these circumstances. Bonaparte collected an army of reserve, and, April 15, 1800, Moreau opened the campaign in Germany. Before the end of May, Bonaparte had passed the Great St. Bernard into Italy, where Masséna was retiring before the superior forces of the enemy. June 4, Bonaparte again entered Milan. In a few days, the Cisalpine republic was restored. While Moreau advanced victoriously into Germany, the Austrians, who had taken Genoa on the 4th of June, were surrounded by the French forces. The fate of Italy depended on a single battle. It was fought, June 14, at Marengo (q. v.), in the spacious plain between Alessandria and Tortona. Melas, the Austrian general, concluded an armistice in Alessandria, June 16, and evacuated to the French the greater portion of Upper Italy. On the 22d, Bonaparte left the army, having appointed Masséna to the command, and, on the 1st of July, entered Paris, where he was received with great demonstrations of joy. To enable the reader to understand the position of the first consul, and to estimate fairly his administration at this period, it would be necessary to go at length into the then existing state of France, which our limits will not allow. We must, therefore, refer to the various memoirs which have been published relating to it. France was at that time torn by parties, oppressed by the unprincipled rapacity of some, excited by priests, surrounded by irreconcilable enemies to the new state of things, and impoverished by the long interruption of commerce and industry. The consul found almost all social ties dissolved; the administration corrupt; religion abolished; justice insecure; the laws disregarded; violence and weakness every where coupled together; factions intriguing against each other; Jacobins, royalists, constitutionalists, adherents to the directory (the directory itself having been divided) opposed to each other;—in one word, a state of anarchy, which disgusted the people at large, and which led to the most daring attempts upon the person of the chief magistrate. Such was the state of France when Bonaparte took the reins into his hand. He directed his attention to every branch of government. The law, the finances,* prisons, education, arts, industry, even the fashions of the ladies, which had become highly indecorous,—every subject of general interest,—attracted his attention. Every thing was to be put on a new footing. Thus situated, gifted with such a variety of talents, and surrounded by foreign enemies, it is not surprising, although it is to be lamented, that he gradually concentred all the powers of government in himself, so that he became the nucleus of all order and law, whereby the civil organization of the government was left destitute of that principle of life and independence which

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* The communications addressed by Bonaparte to the directory, on this subject, and contained in the life of him by Bourrienne, we have good reason to believe genuine.

† The story of the dagger has been explicitly contradicted by Bigonnet and Dupont de l'Eure. in the chamber of deputies, June 18, 1819, who

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were both members of the council and eye-witnesses of the scene.

* Even in his youth, when he had the command of the army in Italy, he had kept a watchful eye over the honesty of the public functionaries.

alone can secure its permanence among civilized nations—a circumstance which proved fatal towards the latter part of his reign. Soon after the return of Bonaparte to Paris, the conspiracy of the sculptor Ceracchi, the painter Topino-Lebrun, Demerville and Arena, was discovered. Their plan was to assassinate the consul at the opera, and their object was the restoration of liberty. On the 24th of December, 1800, another conspiracy produced the explosion of the infernal machine, on which occasion Bonaparte narrowly escaped. The authors of the latter plot were Saint-Régent, Carbon, and Limoelan, chouans, and correspondents of George Cadoudal. (q. v.) Another plot for his assassination by the republicans Metget and Chevalier was discovered; and several other similar conspiracies were frustrated by the vigilance of the police. Arena, Ceracchi, and their accomplices, were executed January 31. Seventy others, accused of being concerned in the affair of the infernal machine, were transported to Africa, of whom Lefranc, Saunois and Vauversin obtained permission to return to France during Napoleon's reign, and the eighteen survivors in that of Louis XVIII. At that time, when a mistaken policy led to the publication of the most absurd libels against France, but chiefly against the first consul, it was asserted that most of these conspiracies were contrived by the government itself, for the purpose of striking its enemies with terror by the execution of the beguiled conspirators. Without referring to Napoleon's character, such charges can be made only by people unacquainted with politics. A long-established and vicious government might, perhaps, resort to such execrable means; but, as Fouché justly observed, "A new government always dates from the discovery of the last conspiracy, which unsettles whatever had already been settled." To invent such conspiracies would have been as impolitic as criminal. As soon as general Bonaparte had seized the reins of government, he directed his attention particularly to the formation and completion of the code of laws, for which steps had already been taken under previous governments of the revolution. Bonaparte personally took part in the debates on the various laws which were to constitute the code; and, throughout his life, he considered the code as one of his chief claims to distinction. (For more particulars, see the article *Codes, les Cinq.*) September 3, 1800, a treaty of peace and commerce was concluded with the U. States of North America. Moreau's victories now compelled Austria to accede to a peace without the concurrence of England. After protracted negotiations between Joseph Bonaparte and the count Cobentzl, a treaty was concluded at Lunéville, February 9, 1801, such, said the first consul, as the French people had wished. (For the details of this peace, see *Lunéville.*) March 28, followed the peace with the king of the Two Sicilies; July 15, a concordate with the pope; August 24, a separate treaty with Bavaria; August 29, another with the Batavian republic; September 29, the peace of Madrid with Portugal; and, October 1, preliminaries of peace, at London, with Great Britain; finally, October 8, peace with Russia, and, October 9, preliminaries with the Porte. The celebration of the general peace at Paris, November 9 (the anniversary of the eighteenth of Brumaire), was splendid, and the people gave Bonaparte the title of *pacificator*. He doubly deserved this title when he turned his attention to domestic improvement of all kinds; to the promotion of arts, sciences and education, of commerce and manufactures; to the restoration of the navy, and the maintenance of the colonies. November, 1801, a large French and Spanish fleet had sailed from Brest and Rochefort, with an army of 20,000 men, under the command of general Leclerc, brother-in-law to the first consul, for St. Domingo, to restore the French authority in that island. This expedition (in which a noble army, so often victorious under Moreau, and the other troops afterwards sent out, were swept away by fever, within a few months) is only one of a series of unsuccessful naval expeditions in which Bonaparte was engaged. Sixty thousand whites perished in St. Domingo. (See *Hayti.*) January 8, 1802, the first consul repaired to Lyons, accompanied by his consular guard, in order to arrange the affairs of the Cisalpine republic, which took the name of the *Italian republic*, and of which he became president January 26, 1802. A definitive peace was finally concluded with England at Amiens, March 26, 1802 (for the particulars of which, see *Amiens*). The celebration of this peace was solemnized, April 28, in Notre Dame, from which event we may date the reëstablishment of the Catholic worship. The joy of the nation was excessive, and the first consul could therefore the more easily accomplish a bold measure, which, under other circumstances, would have met with much resistance—we mean the *élimination*, as it was styled, of many members of the tribunate. In May, a *senatus-consulte* added ten years to the term of Bonaparte's consulship. A law of amnesty, which granted the emigrants permission to return, was now passed; also a law for establishing the legion of honor, which met with considerable opposition in the tribunate, and one for the restoration of negro slavery. There can be no doubt that Bonaparte aimed at the crown even anterior to this period. And here we must say a few words respecting Napoleon's assumption and exercise of power. The great questions which the historian will have to decide, in forming a judgment of Napoleon, seem to us to be, first, whether he was right in taking for granted that a republic in France was impracticable; secondly, whether the situation of France actually required that developement of the military spirit, which Napoleon so completely effected, and which, in modern representative governments, is almost always diametrically opposed to that civic spirit which is the only sure basis of liberty, particularly in a nation peculiarly sensible to military glory; and, thirdly, whether Napoleon was obliged to concentrate the whole government in himself, and carry the system of constraint through all the ramifications of the social system, depriving men of that free action, without which all constitutional forms, oaths and declarations are void, and, with which liberty may exist, in a considerable degree, even unprotected by such forms. This latter question is particularly important, as touching, not merely the rights of Napoleon's contemporaries, but the future fitness of the people for the enjoyment of civil liberty. If it was not necessary to stimulate the military spirit to such a degree as to overbalance greatly the other springs in the social system, and if it was not necessary for Napoleon to concentrate the whole activity of the government in his own person—then he is responsible, not only for the various sufferings of his contemporaries springing therefrom, but as one of the chief causes of the protracted and painful struggle for a free government, which has gone on in France ever since his downfall, and will yet long continue, by preventing the growth of the calm civic spirit, without which liberty is impossible. Civil liberty—the great aim of modern civilization—has never begun with the military glory of numberless victorious legions. But if this growth of the military spirit was necessary, that is to say, if Napoleon could not prevent it in the existing circumstances; and if it was even advisable to promote it, in order to prevent the greater evil of the loss of national independence; and if the concentration of the whole government in himself was required to avert internal dissensions, and all the miseries following from them, insecurity of justice, property and person—then the necessity is to be deplored, not the individual to be condemned. A proper estimate of Napoleon's character depends upon the settlement of these points, which will require great study, comprehensiveness of view, and sagacity, with a sense of justice unbiased by libels, or panegyric, or even by the accusations of real and heart-rending suffering, which must often mistake its own true causes. It must be left to time to determine the truth in regard to the character of Napoleon. At present, this point is still in some measure a party question, and therefore subject to the influence of prejudice. A mere biographical sketch, like the present, cannot go into a minute analysis of it. One remark, however, we may be permitted to make—that Napoleon cannot be said to have abolished republican liberty, as it did not, in fact, exist when he took the reins of government. Republican forms, indeed, had been presented in abundance; but they had no living principle. The government had always been essentially concentrated in Paris. Equality had been effected, but liberty remained to be established: until the former was properly secured, the latter could have no sufficient basis. It was expected, and still is insisted on, by some writers, that he should have beaten foreign enemies, quelled civil dissensions, put a stop to anarchy, established justice and public confidence, counteracted conspiracies, recalled the emigrants, reëstablished the church, and yet have left perfect liberty to all! After the military spirit had been inflamed to the highest pitch, and the military establishment had acquired a gigantic extent; after the government had become absolute, and the ambition of Napoleon, "the last infirmity of noble minds," had received so much excitement—that he then, and especially towards the end of his reign, mistook sometimes the means for the end, cannot be denied (he himself acknowledged the fact, after his return from Elba), nor much surprise us. (For the legion of honor, so powerful an engine in the hands of Napoleon, see the article *Legion of Honor.*) The concordate, concluded as before stated, with the pope, was declared a law of the land, in April, 1802, and thus the Catholic worship was reëstablished in France. (See the article *Concordate.*) The question, "Shall Napoleon Bonaparte be consul for life?" was now proposed to the nation. A *senatus-consulte* of Aug. 2 declared the result of the election: 3,577,885 votes were given, of which 3,368,259 were in the affirmative. The constitution soon after underwent some important changes. The civil list was increased; a court established at St. Cloud; the power of the first consul, as to all domestic affairs, was made very extensive; and he received the right to nominate a successor. When the definitive treaty with the Porte was concluded, June 26, he could say to the republic, that he had established a general peace, and augmented its territory by the addition of 42,000 square miles. This circumstance, doubtless, powerfully influenced the vote on the consulship for life. Aug. 27, the senate took the oath of allegiance to him. The consul could now act more freely towards foreign countries. The protracted and perplexing subject of indemnification in Germany required his attention. Even German princes supplicated the favor and mediation of the consul, which resulted, Feb. 25, 1803, in the new decree of the deputation of the German empire. The disturbances in Switzerland occasioned his interference in Swiss affairs. Aug. 26, the island of Elba was united with the republic, and, Sept. 11, the incorporation of Piedmont took place. While French troops were stationed in Switzerland and on the frontiers, the deputies of the Swiss confederacy repaired to Paris to confer with the first consul, who showed, in these transactions, great skill, and great acquaintance with foreign relations. Jan. 24, 1803, the scheme of the system of mediation was laid before them, and, Feb. 19, they received it as the constitution of the state. (See *Switzerland.*) Jan. 4, 1803, thirty-one senatorships were created within the republic; and, Jan. 23, the national institute received a new organization. The report on the state of the republic, of Feb. 23, and that on the state of finances, March 12, were highly satisfactory to the nation, so short a time previously without money and without credit. The construction of new roads and canals, and the foundation of prizes and splendid institutions, occupied the attention of all classes. It is generally, perhaps universally, stated, that England saw an infraction of the treaty of Amiens in the incorporation of Piedmont, the island of Elba, and the states of Parma, with the French empire, and in the armed mediation in the affairs of Switzerland; and these circumstances are alleged as strong instances to prove that Napoleon did not, in spite of his protestations, wish for peace, because he committed acts that would inevitably lead to war, and which England could not allow; but we have it from the chief of the French delegation for the conclusion of the peace of Amiens, that he informed lord Cornwallis, on several occasions, of the changes which would take place in the relations of France and Italy. The English government was therefore instructed of these changes, and they were not the cause of the rupture of peace. When Mr. Pitt (q. v.) regained power in England, lord Whitworth was sent to Paris, charged to demand the evacuation of Holland by France, and the surrender of Malta, which had been declared independent by the treaty. The first consul felt great indignation at this demand, and declared, when first informed of it by his brother Joseph, that "the times of the Pompadours and Du Barrys were over, that the French wished sincerely for peace, but for a peace becoming honorable men." Complaints accumulated on both sides, without ever being adjusted; and as matters then stood, the minds of men rather exhausted than calmed, and the principles of the French revolution, and the old order of things, still in active opposition, lasting quiet was hardly to be expected from the peace of Amiens. March 13, Bonaparte announced, in a solemn audience of foreign ministers, the approaching rupture with England. He attempted, however, new negotiations, even when the English ambassador had demanded his passports. But after he had left Paris, Bonaparte laid an embargo (May 15) on all foreign vessels in the French harbors; the same was done by Great Britain on the 16th, and on the 18th she declared war. France was at peace with the German empire; but, as the electorate of Hanover, part of the empire, belonged to George III, king of England, Mortier occupied it, June 3, and that country, by the treaty of Suhlingen, fell, without resistance, into the power of the French. All the arms, artillery, stores and horses of the Hanoverian army were delivered to the French, who found in Hanover such ample resources, that the French forces provided themselves there with almost every thing necessary for prosecuting a war against England. At this period, the extensive works of defence on the French, Belgian and Dutch coasts were begun, and the canals which were to unite the Rhine, Meuse and Scheldt. A circumstance which will not fail to interest the student of Napoleon's life, is, that, through madame Bonaparte, herself the daughter of a nobleman (see *Joséphine*), who was pleased with the society of the emigrants, because their manners corresponded to those of her former life, the consul became more disposed, perhaps, to connect the *faubourg Saint Germain* with himself, than the principle which had elevated him would have led him to be. The ancient nobility were ready to accept any thing from him, but still never considered him legitimate; and if Napoleon acted on the high principle of pacifying and uniting all France, he at least reaped little gratitude from the ancient nobility. They could not be reconciled to the new order of things till after the lapse of generations. George III refused to ratify the treaty of Suhlingen, but could not prevent the occupation of Hanover. Now began the developement of that project which exerted so momentous an influence throughout the reign of Napoleon—the continental system, which is treated of in a separate article, and which Napoleon considered as the only way to force England into a lasting peace with revolutionized France. It was the most gigantic political project ever attempted, to obtain which many wars were waged and thrones overturned and established, and which finally brought ruin on the contriver. June 20, 1803, he prohibited the importation of English commodities into France; but he also resolved to encounter England on English ground, and in all the French ports, from Havre to Ostend, immense preparations were made for an invasion of the island. The plan of attacking the English on the other side of the channel, was not conceived of then for the first time since the revolution, as Hoche sailed in 1796 for Ireland, to assist the Irish insurgents. (See *Hoche.*) (A work has lately appeared, which contains some interesting information on this subject—the Life of Lord Fitzgerald, by Moore). Meanwhile, the English fleets blockaded several French and German ports, together with the Elbe and Weser. A conspiracy was soon after discovered, February 15, 1804, against the life and government of the first consul, and for the restoration of the Bourbons, the heads of which were Pichegru and George Cadoudal. Both were imprisoned, and, at different times, forty-five other participators or strongly suspected persons, among whom was Moreau. At the beginning of the process against them, an event took place which seemed to be connected with this process, and which amazed France and all Europe—the arrest and execution of the duke of Enghien. (A full account of the latter, and the explanation of some important points of this tragic affair, are given in the article *Enghien.* Under *Pichegru*, and *George Cadoudal*, the reader will find more particulars relating to the conspiracy.) The protests of Russia and Sweden against the execution of the duke of Enghien, were answered by pointing out the secret artifices by which the English ministers Drake, at Munich, and Spencer Smith, at Stuttgart, had sought to introduce rebellion into France—a charge which was pronounced a calumny in England, where Drake and Smith had returned, but which was not disproved. These new attempts against the favorite of the nation, as well as against the internal peace of France, brought on the decision of the question, Is it necessary to reëstablish hereditary power in France? much sooner than would otherwise have been possible. March 27, 1804, the senate first discussed the subject of confirming the government by the establishment of hereditary power; and, April 30, a proposal was made in the tribunate, to commit the government to an emperor, and make it hereditary in Bonaparte's family. Carnot was the only member who opposed this proposal. Addresses from all the departments came in, expressing the wish to see the benefits of the revolution secured by a hereditary monarchy. These proceedings were followed, May 18, by a *senatus-consulte*, presented to the first consul by a deputation of the senate, at the head of which was the second consul, Cambacérès, who addressed him, for the first time, with the terms *sire* and *your majesty*. The *senatus-consulte* consisted of sixteen divisions, in which provision was made for the succession, guardianship of a minor heir, the dignities of the empire, the oath to be taken by each emperor, two senatorial committees for the protection of individual liberty, and the liberty of the press, a superior imperial court, &c. Immediately after the publication of the *senatus-consulte*, Napoleon—as he was now called, in the usual style of monarchs—appointed his brothers Joseph and Louis (the only ones who had been elevated to the rank of princes by the *senatus-consulte*), the former grand-elector, the latter, constable of the empire. The second consul, Cambacérès. was made arch-chancellor of the empire;

the third consul, Lebrun, arch-treasurer of the empire. The dignity of marshal of the empire was conferred on Berthier, Murat, Moncey, Jourdan, Masséna, Augereau, Bernadotte, Soult, Brune, Lannes, Mortier, Ney, Davoust, Bessières, &c. Seven days after, the emperor received the oath of fidelity from the senate, the tribunate, and the legislative body. The other authorities did not remain behindhand, and the clergy called Napoleon a Mattathias, a pious Onias, a second Jehoshaphat, &c. Meanwhile, the process against George, and the others mentioned above, was concluded. Pichegru had been found dead in prison, April 6. The enemies of Napoleon accused him of the murder of Pichegru, as well as of that of the English captain Wright (see *Wright*); but against all probability, as is now generally acknowledged. Savary, duke of Rovigo, has also satisfactorily defended himself against this charge. (Respecting Pichegru's death, see also the article *Otranto*.) Moreau, who was privy to the conspiracy, without being precisely an accessory, was adjudged to die; but public opinion, as well as Napoleon's reluctance to sign the death-warrant of the victor of Hohenlinden, saved him. (See *Moreau*.) George and nine others were executed. Of the rest, part were pardoned by the emperor—of whom even Bourrienne says, that he took a real pleasure in pardoning—part sentenced to imprisonment. (See *Polignac*.) Louis XVIII was at Warsaw when the news of Napoleon's elevation to the imperial dignity reached him, and he issued a protestation against it, June 6, 1804. Napoleon had taken the title of emperor undoubtedly for several reasons: 1. If hereditary monarchy was required in France, it was certainly a monarchy totally different from the former one, and, therefore, it was advisable to choose a name which would not recall the ideas of ancient royalty, and offend the people's ear. 2. Napoleon wished for a transition from the republic to monarchy; he could call himself *emperor of the republic*, and did so (for instance, on the first coins of the empire); he never could have called himself *king of the republic*. 3. It comported better with the vastness of his views, and he was gratified to call to mind, in his actions or institutions, the Western empire of Charlemagne.[*] July 15, 1804, the legion of honor was solemnly consecrated in the church of the *Invalides*. The ceremony was performed with much pomp, and was calculated to extinguish the recollections of the former kingdom, by substituting a new and imperial pomp, yet accompanied by strong marks of a popular character, growing out of the principle on which the new empire was founded. This celebration has been several times described; for instance, in Bourrienne. The cardinal-legate celebrated the mass. August 15, his birth-day, Napoleon appeared in the camp of Boulogne, and on the next day distributed the cross of the legion of honor, after the legionaries had taken the oath[*] in the presence of 80,000 men. Before Napoleon left Boulogne, he founded prizes for the promotion of science and industry, agriculture included, to be distributed every ten years by the hand of the emperor; but in the great events which took place afterwards, this institution was forgotten. He then went with the empress to Brussels, Aix-la-Chapelle and Mayence. All the German princes immediately acknowledged the emperor; the German emperor only making the condition that the French emperor should recognise him as hereditary emperor of Austria. England, Sweden and Russia, only, refused at first to acknowledge Napoleon. The pope, who, since the times of Pepin the Short, had never anointed and crowned a sovereign but at Rome, consented to go to Paris to be present at the coronation of

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[*] The title of *emperor of the French*, and not *emperor of France*, was given to Napoleon, as the first constitution of the revolution gave to Louis XVI the title *king of the French*, which was again conferred on Louis Philip, to indicate that the sovereign is merely the head of the government, and not the owner of the country; so that his power is limited to controlling the actions of men, and does not extend to the disposition of their property. Defenders of the "right divine" frequently ridicule this title, which expresses what Frederic the Great said of himself, "I am but the highest officer of the state;" and philosophers, like Hegel, have attempted to prove that it does not express the true relations of a sovereign, which they consider essentially different from those of a chief magistrate. This form, however, of referring to the people instead of the country, in the royal title, is very old and was used in feudal times, when the king was but *primus inter pares*, and could not claim any right to interfere with the land or property of the other nobles. Among other instances are the following: An engagement between Philip II of France, and Richard of England, was signed thus: *Moi Philippe, roi des François, envers Richard mon ami, et mon fidèle vassal: Moi Richard, roi des Anglois, envers Philippe, mon seigneur et mon ami.* Philip IV of France (1285—1314) calls himself, in his famous letter to pope Boniface, *roi des François*. (See it, e. g., in Châteaubriand's *Études*, vol. iii, p. 331.) Even the sovereign of Prussia is called, in Latin, always *rex Borussorum*; and the Romans frequently used the same form, as, *rex Romanorum*, *Macedonum*.

[*] See, for this oath, our article *Legion of Honor*.

Napoleon, which took place December 2, 1804, after the senate had set forth the result of the votes for and against a hereditary emperor, December 1. It appeared from 60,000 lists, kept for the purpose, in 108 departments, that out of three millions five hundred and seventy-four thousand eight hundred and ninety-eight voters, only two thousand five hundred and sixty-nine votes were against the elevation of Napoleon to the throne. In the mean time, the fleet of Boulogne had been often exposed to the most ingenious and repeated attacks by fire-ships of all kinds, which, however, by the judicious measures of admiral Bruix, were almost entirely frustrated. Soon after, Bruix died. The death of this eminent officer was so much the more felt, as he would have been of great service in the naval war which threatened France, and which, in the case of Spain, had already begun, by the arbitrary capture, on the part of the English, of four royal register-ships coming from the La Plata, though Spain was entirely disposed for peace. Though the *senatus-consulte* declared only Joseph and Louis princes, yet the sisters of the emperor were soon treated as imperial princesses, which had an effect upon the station of their husbands. Murat, husband of Napoleon's youngest sister, and Eugene Beauharnais, were made princes: the former was also made grand-admiral of the empire, the latter arch-chancellor of the state. Soon after, an event happened which seems to be the first indication that Napoleon intended to make a marked difference between the French state and the French empire—an idea which soon developed itself rapidly. Napoleon's eldest sister, Eliza, who had been married, since 1797, to general Bacciocchi, received from the emperor the principality of Piombino, for her and her male descendants, but with this condition, that the hereditary prince should not have a right to ascend the throne before he had received the investiture from the emperor of the French. The prince of Piombino entered, besides, into many obligations for this fief. In the beginning of 1805, Napoleon wrote, with his own hand, a letter to George III, offering to conclude peace, for the welfare of Europe. George III had just then experienced a return of his mental disorder; so that lord Mulgrave, then secretary of state, wrote an answer to the French minister of foreign affairs, under date of January 14, stating that the king could not accept the proffer without consulting his allies; and containing great praise of the emperor of Russia, which indicated that this power was inclined to join the enemies of France. Napoleon may now have first determined to banish all regard for the balance of power supported by England, and to adopt the idea of a federative system, in which France should have a preponderating influence. January 12, a treaty was concluded with Spain, which put five vessels of the line and 5000 men at the emperor's disposal. The emperor of the French could not well remain the president of the Italian republic. Deputies from the latter came to offer him the crown of Italy, which he accepted, in order to place it upon a younger head, as soon as the state of the nations would allow it. He had in vain requested his brother Joseph to accept the crown of Lombardy. (See *Joseph.*) This was on March 17; and from that day he called himself emperor of the French and king of Italy. The reason for his using the name of the country, in the second title, instead of that of the people, as in the first, is, that he considered his relations to France proper, and other countries under his sway essentially different. His authority over the latter was a matter of temporary expediency; but his relation to France he deemed firm, and therefore his title, as French sovereign, was made to express precisely his authority. May 26, he crowned himself with the iron crown (q. v.) in the cathedral at Milan, pronouncing these words, whilst he took the crown from the altar: *Dieu me la donne; gare à qui la touche* (God has given it to me; wo to him who touches it)—words which became the device of the order of the iron crown, established after the coronation. The oath which Napoleon took was similar to that which he had taken in France. June 7, Eugene Beauharnais was appointed viceroy of Italy, and the Ligurian republic was incorporated with France, after the vote of the people to that effect had been obtained. With Genoa, also Parma, Piacenza, and Guastalla, were added to France. The Po and Sesia were declared to be the division between France and the kingdom of Italy. The republic of Lucca was given as a principality to Felix Bacciocchi. Before Napoleon left Italy, the convents were abolished, with the exception of the charitable orders, or those which devoted themselves to instruction, and a few others, in order not to do too much at once; and several other salutary regulations were made. Notwithstanding the benefits which his policy conferred on the country, these changes were considered as violations of the law of nations, and the incorporation of Genoa with the empire became the pretext for a war long resolved upon. April 11, 1805, a treaty was concluded between Russia and England, by which they engaged to use the most effective means to form a general coalition against France. An army of 500,000 men was to force this empire to restore the balance of power in Europe. England engaged, besides furnishing troops, to pay 1,250,000 pounds sterling annual subsidies for every 100,000 men furnished by her allies. The various treaties between Russia, Austria, England, Sweden, &c., for this purpose, should be read, as they contain many important particulars. The French government even published secret articles, agreed on between the powers, and providing that Lyons should be given to the king of Sardinia, and that Belgium should be placed in the same relations in which it was placed in 1815. Napoleon, though well informed of all these transactions, continued, apparently with the greatest zeal, the preparations for an invasion of England. He spoke the language of peace to Austria; but the Austrians had already marched, September 14, into Munich. Napoleon called his army the grand army. The plan of the campaign, with its various combinations and provisions, is a striking exhibition of genius; and the sagacity with which he made his victories conduce to his political objects, shows his great qualifications for ruling. September 25 and 26, his army crossed the Rhine. October 2, he concluded a treaty, in Ludwigsburg, with the elector of Würtemberg, which gave him a new accession of troops: on the same day, the Bavarians formed a junction with the French army. On the 3d, Bernadotte, who had superseded Mortier in Hanover, marched with his corps through the neutral Prussian possessions in Franconia. Thus, on the 4th, the Austrians were menaced on the flank and rear. On the 8th, Murat gained an important victory at Wertingen. On the 10th, Napoleon concluded a treaty with Baden, at Esslingen. On the 14th, the Austrians were partially defeated at Ulm. On the 17th, Mack capitulated in Ulm; and on the next day, another Austrian corps at Trochtelfingen, and another at Bopfingen. Napoleon's fortune seemed, nevertheless, to waver. On the 21st, the French and Spanish fleet was annihilated by Nelson at Trafalgar; the archduke Charles entered Italy; Prussia put its troops in motion; the Russian emperor appeared himself in Berlin, and persuaded Frederic William to take part in the war: but the French advanced without delay into Austria; and, November 13, Murat entered Vienna, and Napoleon, Schönbrunn. Heavy contributions were imposed upon the country (among other things, for the support of the orphans and widows of French soldiers who had died in the campaign); and after the (so called) battle of the three emperors, at Austerlitz (q. v.), December 2, the emperor Francis had an interview with Napoleon on the 4th, and on the 6th concluded an armistice. This was followed, December 26th, by the peace of Presburg, which deprived Austria of some fine provinces, and aggrandized Bavaria, Würtemberg, and Baden. (See the article *Presburg, Peace of.*) Such a series of rapid and decisive victories was almost unexampled. A convention had been previously concluded with Prussia, at Vienna, December 15, giving to that country Hanover, and thereby severing Prussia from England. The new king of Bavaria gave his daughter in marriage to the step-son of Napoleon; Stephanie Beauharnais, niece of the empress Joséphine, was married to the crown-prince of Baden. A decree of the senate conferred on the emperor the title of Great. Pitt, his implacable enemy, had died, January 23, 1806. March 2, Napoleon proclaimed to the legislative body the dominion of France over Italy. March 16, Napoleon created his brother-in-law Murat duke of Cleves and Berg, and, on the 30th, his brother Joseph king of Naples and Sicily, after the latter had occupied that kingdom with French troops, because Ferdinand, king of Naples, had allowed 20,000 English and Russian soldiers to land, contrary to his engagements with France (see the article *Joseph*, in the Appendix of vol. vii); Venice was united with France; Guastalla was given to Pauline, the sister of Napoleon; Neufchatel to Berthier, the minister of war. The family law of March 31 closely connected all the members of the imperial family, with all their dominions, to the emperor, who saw no other way of overcoming England, and forcing her to conclude peace, than by depriving her of all influence on the continent; and this he intended to effect by extending his power as far as possible. Besides, he had seen that the other powers of the continent would not fulfil their promises without the compulsion of fear. This family law, however, could never have continued, if a successor of less military and political talent had followed him, as was to be expected. May 24, his brother

Louis also received a crown, Napoleon transmuting the Batavian republic into the kingdom of Holland. Talleyrand and Bernadotte were created dukes. Domains in the conquered countries were the rewards of the generals and ministers. July 12, 1806, the confederacy of the Rhine (q. v.) was formed in Paris, and Napoleon, as its protector, became the ruler of the greater part of Germany; and the emperor Francis renounced, August 6, the imperial throne of Germany; and, without a struggle, the ancient empire was dissolved, after it had long ceased to be an empire in effect, and for all the purposes for which governments are established. Whatever the dreams of some fanciful politicians may have been, and continue to be, every unprejudiced observer must confess that the destruction of the German empire was necessary. A few notes were written, and the empire fell to dust, like those bodies which retain their form for a long time when undisturbed, but crumble as soon as touched. In the article *Prussia*, we have spoken of the painful and embarrassing situation of that country in relation to France and England. At the beginning of 1806, England declared war against Prussia, for having taken possession of Hanover; yet Fox, now prime minister of Great Britain, showed himself willing to treat respecting peace with France; but when the Prussian ambassador learned that the restitution of Hanover was spoken of as one of the conditions of a peace between France and England, it may be said that war between Prussia and France was certain; and when Napoleon established the confederacy of the Rhine, Prussia thought it her duty to endeavor to check his growing power in Germany. She declared war, and the combined Prussian and Saxon army, consisting half of foreigners, was totally routed, October 14, 1806, in a double battle at Auerstädt and Jena, a long description of which is given under the head of *Jena*. Before the battle of Jena, Napoleon directed a letter to the king of Prussia, in order to try to stop the effusion of blood, dated Gera, October 12. Saxony was separated from the alliance with Prussia, and the scattered portions of the army of the latter submitted to the enemy, whilst almost all her fortresses fell by treachery or cowardice. October 27, Napoleon made his entry into Berlin, and organized a government for the conquered Prussian territories.* General Mortier
had occupied the principality of I
and driven the elector of Hesse out
country. The house of Brunswicl
declared to have ceased to reign, o
count of the celebrated manifesto i
by the duke, which, however, was
up by French emigrants. Some ne
tions for peace, which took place at
lottenburg, near Berlin, were fruitless
vember 21, Napoleon issued the f
Berlin decree, declaring Great I
in a state of blockade, and strictl
hibiting all intercourse with her.
Continental System.) The French
continued to advance. At Posen, I
leon promised to the long-wronged
the restoration of their kingdom. A
sian army hastened, indeed, to aid th
of Prussia; but the battle of Pultus
cember 26; the bloody battle of I
February 7 and 8, 1807 (see *Eylau*)
capitulation of Dantzic; the divisi
the Russian power by the Turkish
the skirmish at Heilsberg, June
Ostrolenka, on the 12th; and the
of Friedland (q. v.), on the 14th,—fina
sulted in a truce on the 21st; and,
7th of July, in a peace between I
and France, and, on the 9th, be
France and Prussia, at Tilsit. In th
cle *Tilsit, Peace of,* are given the resu
this peace, the main features of
were, that Prussia lost upwards o
millions of subjects, and had to pay
bitant contributions. Her princip
tresses remained in the power
French until all was paid. The n
created duchy of Warsaw was gi
the elector of Saxony, who was pro
to the royal dignity. A new kingdo
composed of Hessia, Brunswick, Ha
Osnabrück, and part of Prussia, re
to the Elbe, called the kingdom of
phalia (q. v.), the crown of whicl
given to Jerome, the youngest brotl
the emperor, married to a princess
of Würtemberg. (See *Jerome.*)
ever views Napoleon himself enter
respecting these newly-created kin
—whether they were at some futur
to give way to institutions more calc
for stability and independence, or w
he actually thought it possible and
ble to establish, in this way, a pern
dependence of foreign countries
France—a view which can hardly

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* The pardon of prince Hatzfeld (q. v.), at this time, is a pleasing incident in Napoleon's life. In the heat of political excitement, whose effect is always to exaggerate or distort, this pardon c
feld was called a theatrical display; as if,
moment, Napoleon either needed, or could
to conciliate the Prussians. Similar c
were also often cast on his offers of pe
stop the effusion of blood.

cribed to him, as the impracticability of it was too evident (the existence of this system of foreign dependencies resting upon his personal energies, and the strange conflict of interests in Europe)—we say, whatever were his views, it ought to be remembered, that he abolished aristocratic privileges in the conquered countries, and transplanted thither various institutions, founded on liberal principles, the free operation of which, of course, was impeded by the protracted wars in Europe. Napoleon returned to France, and received in Paris the visits of the German princes. In destroying the power of Prussia, he probably had three objects: 1. to deprive Russia of a power ever ready to unite itself with her, in her attacks upon the new order of things, particularly since the spoliation of Poland, in which they both shared; 2. to be safe against attacks from the east, whilst his attention was attracted to the west; 3. to ensure the rigorous observance of the continental system along the coast of the Baltic. The interview of Napoleon and Alexander, at Tilsit, resulted in a personal friendship between the two monarchs, promoted, perhaps, by the late conduct of England towards the emperor of Russia. England suspected the conclusion of secret articles of peace between them, and insisted on knowing them. As this was refused, she feared that Denmark, unable to maintain her neutrality in such a state of things, would yield up her ships to supply the French loss at Trafalgar. The English cabinet, therefore, resolved to possess themselves of the Danish fleet, and succeeded, September 7, after the bombardment of Copenhagen. The Danish fleet consisted of 18 vessels of the line, 15 frigates, 6 brigs, and 25 gun-boats. The fate of Denmark, at this time, was the harder, as she had honestly struggled to preserve her neutrality; but, in great political crises, it is impossible either for nations or for individuals to remain neutral. One of the first measures of Napoleon, after his return to St. Cloud, July 27, 1807, was the dissolution of the tribunate. On the other hand, the *cour des comptes* was established, containing, as before the revolution, three departments;—one for the expenditure; another for the revenue; and the third for the expenditure and revenue of the cities and communities. His attention to internal improvement was unabated.* Still further to straiten England, Napoleon now shut up the ports of the Pyrenean peninsula. Portugal, which has, for the last century, always been dependent on England, attracted particularly Napoleon's attention. Spain, ever since 1795 subservient to France, had been so merely from fear; and, when Napoleon, in 1806, was occupied with Prussia, Godoy, the prince of peace, had issued a proclamation, calling upon the Spaniards to take up arms against the common enemy, who, however, was not named more definitely. Pradt (q. v.) (*Mémoires sur la Révolution d'Esp.*) ascribes Napoleon's conduct towards Spain, to his being irritated by this foolish proclamation; but the plans of Napoleon were not

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* His attention to this subject appears from many documents, and is strikingly shown in the following letter, which was published in No. 12 of the *Revue Britannique*. It shows his large, penetrating, prospective views, and constant reference to posterity, and to their opinion; the lofty spirit in which he undertook labors of practical utility; the blended familiarity and elevation of tone with which he addressed his ministers; the impulse which he gave to his government by the paths which he traced out for others to follow; and his practical spirit. As it was not written for publication, it will not be charged with deception.

"Fontainebleau, Nov. 14, 1807.

"*Monsieur Cretet,*—

"You have received the imperial decree by which I have authorized the sinking fund to lend 8,000,000 francs to the city of Paris. I suppose that you are employed in taking measures which may bring these works to a speedy conclusion, and may augment the revenues of the city. In these works, there are some which will not be very productive, but are merely for ornament. There are others, such as the galleries over the markets, the slaughter-houses, &c., which will be very productive; but to make them so will require activity. The shops, for which I have granted you funds, are not yet commenced. I suppose you have taken up the funds destined for the fountains, and that you have employed them provisionally for the machine at Marly. Carry on the whole with spirit. This system of advancing money to the city of Paris, to augment its branches of revenue, is also intended to contribute to its embellishment. My intention is to extend it to other departments.

"I have many canals to make: that from Dijon to Paris; that from the Rhine to the Saône; and that from the Rhine to the Scheldt. These three canals can be carried on as vigorously as could be wished. My intention is, independently of the funds which are granted from the revenues of the state, to seek extraordinary funds for the three canals. For this purpose, I should like to sell the canal of St. Quentin, the produce of which might be employed to expedite the works of the canal of Burgundy. In fact, I would sell even the canal of Languedoc, and apply the proceeds to the construction of the canal from the Rhine to the Saône. I suppose that the canal of St. Quentin might be sold for 8,000,000 francs; that of Loing for as much; and the canal of Languedoc for more. There would then be 30,000,000 procured immediately, which I should employ in carrying on the three great canals with all possible rapidity. I have the money; the state will likely to be influenced by the proclamation of a subject like Godoy. (q. v.) Between the agent of the latter at Paris (Izquierdo by name) and the French court, a convention was signed, on October 27, at Fontainebleau, in which it was provided that the house of Braganza should cease to reign in Portugal, which was to be divided into North Lusitania, for the king of Etruria, who was to restore Tuscany to France; South Lusitania, for Godoy, as a sovereign prince; and the central provinces, which were to be subsequently disposed of. Napoleon had informed the prince regent of Portugal, in August, "that he must give up all connexion with England, confiscate English merchandise in Portuguese ports, and adhere, without reserve, to the continental system, if the house of Braganza wished to remain on the throne" —a demand which it was actually impossible to fulfil, besides being inconsistent with the oath taken by every ruler of Portugal. When a French and Spanish army approached, he and his family embarked, November 29, for Brazil: the next day, Junot entered Lisbon, and the conquest of Portugal was completed. The political state of Spain at this time was deplorable, and the condition of the Spanish court shocking. It consisted of a king, universally called *inepte* and *im-*

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lose nothing: on the contrary, it will gain; since, if it loses the revenues of the canals of Loing, St. Quentin, and that of the south, it will gain the product of the canals of the Scheldt, Napoleon, and Burgundy; and when these works are completed, if circumstances permit, I shall sell these, in order to make others. Thus my object is to pursue a directly opposite course to England, or to what is proposed to be done there. In England, a charter would have been granted, for constructing the canal of St. Quentin, and the work would have been left to capitalists. I have, on the contrary, begun by constructing the canal of St. Quentin. It has cost, I believe, 8,000,000 francs; it will produce 500,000 francs. I shall, then, lose nothing by selling it to a company for what it has cost me; since, with this money, I shall construct other canals. Make me, I beg of you, a report upon this subject; otherwise, we shall die without seeing these three canals navigated. In fact, it is six years since the canal of St. Quentin was begun, and it is not yet finished. Now, these canals are of much more importance. The expense of that of Burgundy is estimated at thirty millions. What can be expended from the general funds of the state, does not exceed a million yearly; the departments do not furnish more than 500,000 francs. It would, then, require twenty years to finish this canal. What may not happen in this time? Wars and inefficient men will come, and the canals will remain unfinished. The canal from the Rhine to the Scheldt will also cost a large sum. The general funds of the state are not sufficient to carry them on as quickly as we could wish. The canal of Napoleon is in the same situation. Let me know how much it will be possible to expend yearly on each of these three canals. I suppose that, without injuring other works, we might allow to each, yearly, three or four millions; and that thus, in five or six years, we might see them all navigated. You will inform me how much the existing imposts will furnish for these three canals; how much I have granted for 1808, and the supplementary funds which I granted in 1806, for carrying on these works with the greatest activity. You will propose to me to sell the three canals already finished, and at what price it would be best to sell them. I take upon myself the charge of finding purchasers: then we shall have money in abundance. You must tell me, in your report, how much the three which I wish speedily to finish are estimated to cost, and compare it with the sums which the three old canals have cost that I wish to sell.

"You understand what I wish. My intention is, to go beyond your report. Perhaps it will lead to opening a fund for public works, into which the proceeds of the navigation of the canals would be immediately thrown. We might thus grant to this the proceeds of the sale of the three canals, and of others besides, if there are any which can be sold. With this institution we should change the face of the country.

"I have made the glory of my reign to consist in changing the face of the territory of my empire. The execution of these great works is as necessary to the interest of my people as to my own satisfaction. I attach equal importance and great glory to the suppression of mendicity. Funds are not wanting; but it seems to me that the work proceeds slowly, and, meantime, years are passing away. We must not pass through this world without leaving traces which may commend our memory to posterity. I am going to be absent for a month. Be ready on the 15th December to answer all these questions, which you will have examined in detail, that I may be able, by a general decree, to put the finishing blow to mendicity. You must find, before the 15th December, in the reserved funds, and the funds of the communes, the necessary means for the support of sixty or one hundred houses for the extirpation of beggary. The places where they shall be erected must be designated, and the regulations completed. Do not ask me for three or four months to obtain further instructions. You have young auditors, intelligent prefects, skilful engineers; bring all into action, and do not sleep in the ordinary labors of the bureau. It is necessary, likewise, that, at the same time, all that relates to the administration of the public works, should be completed; so that, at the commencement of the fine season, France may present the spectacle of a country without a single beggar, and where all the population may be in action to embellish and render productive our immense territory.

"You must, also, prepare for me all that is necessary respecting the measures to be taken for obtaining from the draining of the marshes of Cottentin and Rochefort, money for supporting the fund for public works, and for finishing the drainings, or preparing others.

"The winter evenings are long; fill your portfolios, that we may be able, during the evenings of these three months, to discuss the means for attaining great results.

"Upon this, &c.

"NAPOLEON."

"M. CRETET, my minister of the interior" *bécil*;—which, indeed, the conduct of Charles IV shows that he must have been;—a criminal queen, who did not even observe appearances; an ambitious and intriguing favorite and prime-minister; and an heir-apparent conspiring against his father's throne. A conspiracy of the prince of Asturias induced even the king to make public avowals, which proved the truth of all the scandal, political and domestic, respecting the royal family, that many, till then, had not fully credited. These circumstances had taken place when Napoleon made a journey to Italy, towards the end of 1807. In Venice he saw Joseph, king of Naples; and when he returned to Mantua from Venice, he met his brother Lucien, who had come thither from Rome. Some have believed that he then offered the latter the crown of Spain; but we cannot judge whether he had then fully formed the project of placing a new race on the Spanish throne. In the article *Joseph* (Appendix to vol. vii), it is stated that, at a later period, Lucien was offered the crown of Naples, when Joseph exchanged it for the crown of Spain. Eugene at this time was made prince of Venice, his infant daughter princess of Bologna, and Melzi d'Erile duke of Lodi, and the order of the iron crown was extended. The kingdom of Etruria was changed again into the grand-duchy of Tuscany, and added provisionally to France. The queen Maria Louisa, of Etruria, returned to Spain. Dec. 17, 1807, Napoleon issued the famous decree of Milan (see *Continental System*), which was followed by a still severer decree, of January 11, 1808. In the same month, Kehl and Castel, Wesel and Flushing, were united to the French empire. General Miollis marched into Rome, occupied it, and kept the pope in a state of dependence, but not, as many have believed, in order to prevent him from impeding the execution of the plans respecting Spain. A new hereditary nobility was now created, in order, as the emperor expressed himself, to give the imperial throne the requisite dignity, and to excite a praiseworthy emulation in the hearts of the French. The titles of the new nobility were those of the feudal times; yet no privileges were attached to these titles. This blow was considered by the old nobility more severe than any previous one, and, perhaps, was so. This event took place a short time before the great changes in Spain. (For a connected relation of these occurrences, and for the war in Spain, see the articles *Spain*, and *Joseph*.) The schools and institutions of instruction in the whole empire were uniformly organized, but in a military manner; and a new religious catechism was prepared for the French empire, which was offensive to the thinking part of the nation, though the object of it was probably to deprive certain fanatics of the influence which they exerted over the uninformed against Napoleon and the new order of things. The English landed in Portugal, and the Portuguese showed a great disposition to rise against the French. Napoleon brought about the congress of Erfurt, in order to make one more effort to establish peace, or at least to secure himself on the east, that he might devote his whole strength to the reduction of the Pyrenean peninsula, particularly as Austria had shown a great disposition to break once more with France. The article *Erfurt* contains some details respecting this congress, which took place in Sept., 1808, and at which the emperor Alexander appeared, with many other potentates. The reader will find there also the joint letter of Napoleon and Alexander to George III. England, however, refused to enter into negotiations for peace, and replied to the letter by a public note, written by Canning; as a different mode of answer, said the minister, would have amounted to an acknowledgment of the title of Napoleon. October 18, Napoleon returned to St. Cloud: on the 29th, he set out for Spain, where his presence brought victory to the French arms. But threatening movements of the Austrian cabinet speedily obliged him to return. Austria declared war April 9, 1809. Napoleon entered Ingolstadt on the 18th. On the 20th, he defeated the Austrians at Abensberg; on the 21st, at Landshut; on the 22d, at Eckmühl (see *Eckmühl*); on the 23d, at Ratisbon; and on the 12th of May, Vienna capitulated. An attempt to excite the Hungarians to insurrection was unsuccessful; and in Tyrol, then belonging to Bavaria, the peasants took up arms against the French, being promised support by a letter of the Austrian emperor, and afterwards shamefully abandoned. (See *Hofer*.) Even in the north of Germany, an insurrectionary spirit broke out. (See *Schill*.) On the 21st and 22d of May, Napoleon lost the battle of Aspern (q. v.) and Esslingen; but the Italian army came to his aid; and, after the battle of Raab, June 14, the Austrians also lost, July 5th and 6th, the battle of Wagram (q. v.), which resulted in the truce at Znaym, July 12. The Tyrolese alone continued to fight with success, and the duke of Brunswick-Œls escaped the pursuit of a superior force. But the occupation of Walcheren by the English (see *Otranto*), the capitulation of Flushing, August 15th, and the conquest of the Ionian Islands, October 9th, did not affect the success of Napoleon in Austria. On the 13th, a German youth of the name of Staps (q. v.) attempted to stab him in Schönbrunn. Meanwhile he had united, May 17, 1809, the whole of the States of the Church with France. Pius VII (q. v.) had no arms but excommunication, and this he pronounced, June 12, against the emperor. For this he was carried to France, where Napoleon thought he could deprive him of all political influence. October 14, peace was concluded at Vienna. Austria lost some valuable provinces and its seacoasts. The Illyrian provinces were made a French government. The most important of the negotiations following this campaign was that for the hand of an Austrian princess for the emperor, who, if his elevation to the imperial dignity had been necessary, according to the general opinion, to give quiet to France, certainly wanted a son for the firm establishment of his throne, and the security of the laws and institutions connected with it. Hard as it was for him to separate from Joséphine, the step was one that might have been expected; but whether he acted the wisest part in marrying an Austrian princess is another question, not to be discussed here. (See *Otranto*.) December 2, Napoleon celebrated the anniversary of his coronation at Paris with unusual pomp—a festival remarkable for the great number of sovereigns from Germany and other parts of Europe, who attended it, and for the speech which Napoleon delivered on that day in the hall of the legislative body, and which was directed much more to all Europe than to the assembled representatives of the numerous departments of France. December 16, a decree of the senate annulled the marriage between Napoleon and Joséphine. March 11, 1810, the nuptials of the emperor with the archduchess Maria Louisa (q.v.) of Austria were celebrated in Vienna, and, April 2, cardinal Fesch performed the marriage ceremony at Paris. Peace had also been concluded, Jan. 6, 1810, with Sweden, on the basis of the continental system. March 1, moreover, the viceroy of Italy was appointed hereditary grand-duke of Frankfort, as successor of the prince primate; the remaining part of Hanover was united with the kingdom of Westphalia; and, on the 16th, the king of Holland was compelled to make great concessions. He therefore unexpectedly resigned his crown, July 1, which he could no longer wear with independence and honor (see *Louis Bonaparte*); and on the 9th, the incorporation of the whole kingdom with the French empire was declared. A similar fate befell Valais and the countries of the German confederacy at the mouths of the Ems, Weser and Elbe, the Hanseatic towns, Oldenburg, a portion of the grand-duchy of Berg, and even some parts of Westphalia, which the king was obliged to cede. A great portion of Europe was subjugated. Spain alone continued to fight. England remained unconquered, and Russia was still a formidable power. With America, too, differences arose respecting the continental system; for this reason the decrees of Berlin and Milan were ostensibly revoked, April 28, 1811. But the tariff of Trianon, as it was called, the continued captures and burning of English and colonial goods, inflicted still deeper wounds. Napoleon stood on the pinnacle of his power, which, if possible, was still more consolidated by the young empress giving birth to a prince, March 20, 1811, to whom, even before his birth, had been given the title of king of Rome. (See *Reichstadt*.) About the end of the year new differences arose with Russia and Sweden. Sweden was easily deprived of its German provinces, Jan. 27, 1812. Preparations on the most extensive scale were soon after made in France against Russia. The difference between France and Russia, it is generally stated, was caused by Napoleon's annexing the territory of several members of the confederation of the Rhine to France. Among these was the duke of Oldenburg, who refused to take Erfurt, with the territory appertaining to it, in exchange for his duchy, and preferred to retire to the court of the emperor of Russia, his near relation. But, in fact, the chief cause of the war between France and Russia was, that Alexander would not adhere so strictly to the continental system as he had promised to do at Erfurt. Napoleon thought that peace could not be obtained but by carrying this system through. He had made too many sacrifices already, in maintaining it, to be willing to give it up. Moreover, he saw that the two empires would necessarily come to war as soon as Russia should attempt to execute her plans upon Constantinople, which western Europe could not permit. Napoleon was then at the head of such a force as he might never again be able to command, and thought it a great object to prevent the execution of the projects of the Russian colossus. The formidableness of this gigantic power to the west of Europe, and the necessity of clipping the wings of its ambition, are now sufficiently apparent. But Napoleon foresaw not the burning of Moscow, and the great impulse given thereby to the Russian people. The winter, which set in several weeks earlier than usual, did the rest. The battalions of the French and allied armies assembled in Germany and Poland. The Prussian fortresses and Dantzic were still occupied by the French. Napoleon left St. Cloud May 9. In Dresden he collected around him the German kings and princes, the emperor and empress of Austria. June 24, he led his army across the Niemen. Thus began the war with Russia. He called it the second Polish war. (See *Russian-German War of* 1812—15, forming a division of the article *Russia.*) Napoleon's genius, however, shone amidst his reverses, and amazes even amidst the horrors of the passage of the Berezina (November 26 and 27). How striking is the twenty-ninth bulletin, of December 3! The battle of Leipsic, on the 16th, 17th and 18th of October, displayed all his talent, but its consequences were most disastrous to him. All his energies were called into action in the series of conflicts between the Marne and Seine, in February and March, 1814. In spite of the entreaties of all who surrounded him, he refused to make peace. (See *Chatillon, Congress at.*) Several of his ministers, who thought his ruin certain, considered it prudent to provide, in time, for themselves, especially Talleyrand. They assisted the enemy on their way to Paris. The senate, too, formerly so submissive, rose against the emperor, and the insecurity of absolute power was strikingly demonstrated. Marmont, at last, abandoned his master. (See *Marmont.*) April 11, 1814, Napoleon signed the act of abdication, and the treaty, which left him the island of Elba, with sovereign power, the title of emperor, and an income of 2,000,000 francs. He abdicated with the words, "The allied powers having proclaimed that the emperor Napoleon is the only obstacle to the reëstablishment of peace in Europe, the emperor Napoleon, faithful to his principles, declares that he renounces, for himself and his heirs, the thrones of France and Italy, because there is no personal sacrifice, even that of his life, which he is not ready to make, for the welfare of France, and for the peace of the world." At this point we may consider the history of the empire as, in the main, closed, and pause for a moment. The time has not yet arrived when Napoleon can be coolly estimated. It must be left to future generations to consider calmly his whole career, undisturbed by personal or party feeling, and unembarrassed by the multitude of details which now prevent the true bearing of his measures from being seen. The opinions now entertained respecting him may be classed, we think, under the following heads: 1. That he was a usurper. This charge is preferred by two very different parties; *a.* by the adherents of legitimacy, who think his noblest course would have been to play the part of general Monk. We need not discuss this point, in this country, and in the year 1832. *b.* The charge of usurpation is also made by some republicans. We have already observed that, up to the time when Napoleon took the reins of government, no republic can be said to have existed in France. We need then only ask, whether the tendency of France was towards a republic, and whether Napoleon ought to have lent his power to establish it, provided he could have seen the possibility of its permanence. The forms of governments, important as they are, are but secondary compared to the primary elements of national character and political condition, and are always dependent on the latter. The preservation of the new politico-social relations was first to be attended to. If a republic was incompatible with justice, safety of person and property, internal peace, or national independence, the former ought to have given way to the latter. We believe there are few people of judgment who, at present, maintain that, at that period, a republic would have comported with the internal and external relations of France. Firmly attached as we are to republican institutions, we yet must admit that, as there must be a difference in the habitations of men, according to the materials which they possess for their construction, so governments must differ with the character and condition of the governed. Republics cannot exist without republicanism, and republicanism cannot be created by the forms of a constitution, but springs, in a great measure, from the nature of men's relations in ordinary life. Those forms of social connexion which are favorable to this spirit, it is, of course, the duty of every lover of liberty to

promote. 2. There are some who admire Napoleon, and acknowledge that he did much good to France, but maintain that his own genius and success led him astray; that by degrees he deviated from the principle which had elevated him, and afforded the only firm basis of his power; and that he gradually gave way to principles which must ruin him; that, moreover, he laid the foundations of numerous institutions which, if they had been developed, would have brought in again many of those evils which the revolution had just removed; and that he omitted to lay the foundation of those institutions which, if developed, would have produced that wide-spread political and social activity, on which true liberty can alone rest; but, on the contrary, deprived the nation of free action, and organized the whole body politic less in a civil than in a military manner; and that ambition, so natural to noble and elevated souls, overpowered him. 3. Lastly, there are those who insist upon Napoleon's having sincerely wished for peace; that he had no desire for renewing war after the peace of Lumeville and of Amiens, but that he was forced to war by the unrelenting attacks of the aristocracy of Europe, supported by the money of England, which was itself ruled by its own aristocracy, who expected that Napoleon would exhaust France, and exasperate Europe, by continual conflicts. As his repeated offers of peace were spurned, he was unable, they say, to establish in France institutions in accordance with free principles, which he sincerely wished to establish, and which he must have been desirous of establishing from his love of posthumous fame, and from his knowledge of the character of his age, in which authority could no longer be maintained merely by brute force, but required the support of public opinion. They sum up the whole history of the empire in these few words: "Napoleon was forced to war by the English, and to the dictatorship by the war." Napoleon used, not unfrequently, to say to his confidants, "If a general peace is ever concluded, then only shall I be able to show myself such as I am, and become the moderator of Europe. France is enabled, by her high civilization, and the absence of all aristocracy, to moderate the extreme demands of the two principles which divide the world, by placing herself between them, thus preventing a general conflagration, of which none of us could reasonably expect to see the end, or guess the issue: for
that, I want ten years' peace, and th
lish oligarchy will not allow it." W
his brother Joseph, as one to wh
disclosed himself in this way repe
The latest events are melancholy
mentaries in favor of Napoleon,
er we do or do not approve entir
his course, considering what the
nal state of France, as well as wh
condition of Europe, required.—
turn to our brief biographical sketc
the island of Elba, Napoleon oc
himself with literature, and the co
tion of public works; and whilst
observing the discord of the Eu
powers at the congress of Vienna, a
blind folly manifested by the Bour
France, the court papers of Paris
sented him as mad! We are un
state what caused him to return
Elba precisely at the time when
He embarked, February 26, 1815
900 men, and landed, March 1, at C
not far from Frejus, where he had
sixteen years before, on his retur
Egypt; and his march to Paris
time might well be compared
former journey. On the voyage,
written a proclamation, which set
the reasons of his return, and of wh
caused many copies to be made. W
encountering any royal troops, he adv
rapidly. March 7th, he first met a b
royal troops, commanded by Labéd
who could not prevent them from j
Napoleon's guards. The same ev
the gates of Grenoble were ope
him. Lyons was entered on the e
of the 10th. On the 13th, marsh
(q. v.) went over to him; and Marc
he reached Paris, which Louis XVI
left in haste,—an event which plainly
ed, that the great majority of the F
were against the Bourbons,—and s
distinguished persons, who had be
ways unwilling to rally round Nap
now joined him, either considerin
return indispensable, or at least the
of the Bourbons as the greatest evil
could befall France. The royalist
became liberals, and preached the
of liberty against the tyrant! The
archs assembled at Vienna declare
poleon out of the pale of national l
the Bourbons had already given ord
hunt him down (*courir sus*), as the e
sion was, by which Napoleon was
the same footing with the lowest cri
Whilst he was exerting himself to
and organize an army, he caused the
tional act" to be added to the constit
of the empire In the preamble of th

ditional act," which is, in several respects, more liberal than the charter of the Bourbons of 1814, he declares that his object had been to establish a federative system over the continent of Europe, and that he had, on this account, delayed the developement of individual liberty in France; but that "henceforth he has no other object than to promote the welfare of France by giving security to liberty." (See *Peers.*) The battle of Waterloo (q. v.) defeated all his plans and hopes. He returned to Paris June 21, where, at the requisition of the representatives, he abdicated, on the 22d; but this time not for himself and his heirs, but in favor of his son, Napoleon II, which abdication, of course, was not accepted by the allied powers, who had not ceased to acknowledge the Bourbons as rulers of France, though they were little disposed to make any great effort to support the elder branch of this line, if the French should prove unwilling to receive them. Napoleon retired to Malmaison, and, after some days, to Rochefort, where he found the frigates, destined for him, ready, but the harbor closely blockaded by the English. He wished to embark for the U. States. (See *Joseph Napoleon.*) July 3, the capital surrendered to the enemy, and Napoleon was exposed to be given up to the Bourbons by Fouché or Talleyrand. At the same time, being prevented from sailing, he asked, July 10, the commander of the British ship Bellerophon, which lay off the port of Rochefort, what he had to expect if he claimed the hospitality of the English. The answer was, that the commands of the admiral should be obtained. On the 14th, Napoleon sent once more to the British commander, who answered, that he had not yet received orders, but that he was authorized, if Napoleon would embark immediately for England, to carry him thither, and to show him every respect due to his rank. Napoleon accepted the offer, and, despatching general Gourgaud to the prince regent, with a letter, comparing his own fate to that of Themistocles, he went on board, July 16; and the vessel immediately sailed for Torbay, where he was informed, on the part of the English government, that he was to be conveyed as a prisoner to St. Helena. On that island he lived from October 18, 1815, to May 5, 1821, at Longwood, receiving from the English the title of "general Bonaparte," and watched by the commissioners of the allies, as a European prisoner of state. Napoleon was voluntarily accompanied by general Bertrand, with his wife and child; count Montholon, with his wife and child; count Las Cases, with his son, who was obliged to leave him in 1817; general Gourgaud, who returned to Europe in 1818; and by several servants. Napoleon's life at St. Helena has disarmed the hatred of many of his contemporaries, while it has increased the respect of his adherents. He maintained his character in the miseries of exile as in the palace of the Tuileries. All the persons who served him at St. Helena treated him as emperor; and he appreciated and returned their fidelity with feelings of gratitude and friendship. The governor of the island, sir Hudson Lowe, watched him with unsparing rigor; but Napoleon still exhibited the immovable firmness which had previously distinguished him. In no respect would he concede to the English the right to dispose of his person. When his physician, O'Meara, was ordered to leave him, by the English governor, he remained for some months without medical aid: the prayers of his attendants, and the daily declining state of his health, could not induce him to admit a physician sent by the English governor. When he was no longer permitted to go abroad without military escort, he never left his habitation. His principal employment was the composition of his memoirs. For recreation, he played chess, or some one read to him, chiefly tragedies. In the confidential circle, he spoke of his childhood and his fate with the calmness with which he would have spoken of the history of antiquity. Of the French at St. Helena, Napoleon was the most serene. He entertained for his son the most tender affection; of France he spoke only with respect and love. His sickness first assumed a dangerous character in the last six weeks of his life. According to the English physicians, who opened his body in the presence of the physician Antommarchi, sent to Napoleon from Italy, it was occasioned by a cancer of the stomach. Napoleon was aware that his death was approaching, and spoke of it frequently and with composure. When he heard from the physician that he had but forty-eight hours to live, he asked general Bertrand to assist him in making his will, which occupied them both about fifteen hours. His last dispositions contain several proofs of gratitude and kindness. At the hour of his death, no change was visible in his countenance. He expired—on the field-bed which he had used at Austerlitz—with calmness, in the arms of his faithful friends, Bertrand and Montholon, at Longwood, May 5, 1821, about six o'clock in the evening, aged fifty-one years and nine months. May 9, he was buried in a valley of his own selection, with the military honors of a general. The voluntary companions of his exile, general Bertrand and Montholon, with their families, returned, by way of England, to France and Paris, with the permission of the French government, October, 1821.—Napoleon's figure was short. He measured but five feet six inches. His head was rather large, in comparison to his body, and covered with chestnut-colored hair. His broad and elevated forehead indicated a firm will. His eyes were light-blue, and susceptible of great variety of expression. The eyelashes were lighter than the eyebrows, which were of the color of his hair. His nose was fine, his mouth agreeably formed, and capable of very various expression. His chin was rounded, and his cheek approaching to square. His complexion was clear olive; otherwise, in general, colorless. His neck was short; his shoulders broad. His hands were small and white. His feet also were small; but this particular was less observable, as he was averse to tight shoes. Before he became fat, his figure was, on the whole, well proportioned. When past thirty, he began to be corpulent, which he disliked; before that time, he was lean. Extreme cleanliness was natural to him: he was very fond of the warm bath, and not unfrequently remained a whole hour in it. In eating and drinking, he was extremely moderate, never having been known to exceed the bounds of temperance. His sleep was in proportion to his labors; but in this, too, he was moderate. His face, like that of Frederic the Great, was of such a character as to be recognised, however rudely or slightly drawn.—In 1815, before his departure from Paris, Napoleon informed his brother Joseph, that there was, among some papers in a box which he had sent him, a copy of the letters which the different sovereigns had written to him. This copy he had ordered to be made by way of precaution, as the originals remained in the archives. Some years later, doctor O'Meara, after his return from St. Helena, informed Joseph that Napoleon wished to have this correspondence published, as the best answer to all the calumnies against him; but the copies could not be found. The papers in the box containing them had been distributed, among a variety of things, in other boxes, with a view of concealing them from the eyes of the police; and when these boxes reached the U. States, the copy of the correspondence was not in either of them. It must have been lost, in the confusion of packing, in Paris. It ought to be mentioned, too, that, about the period when O'Meara's communication was received, the mansion of Joseph in the U. States was consumed by the flames The original letters were sold, for £30,000, in London, where they had been deposited with a bookseller. Those who assert that Napoleon put this correspondence into the hands of Joseph, at Rochefort, are under a mistake. Joseph received nothing from Napoleon, either at Rochefort or at the isle of Aix. The total disappearance of the letters would be an irreparable loss to history, as they are the key to that portion of Napoleon's life which can be understood only by an acquaintance with the secret springs of diplomacy, showing us where he acted freely, and where under the compulsion of circumstances.—A considerable service would be rendered to the student and politician, if a catalogue of all the works relating to Napoleon and his times were published.—The following chronological table of the events of Napoleon's life and reign will, perhaps, be acceptable to our readers:—

1769. Born at Ajaccio, Aug. 15.

1770. Sent to the military school at Brienne.

1784. Selected to complete his education at the military school in Paris.

1786. Commissioned as second lieutenant of artillery, and the same year promoted to a first lieutenancy.

1792. While on a furlough in Corsica, commands a battalion against Ajaccio.

1793. Obliged to leave Corsica, on account of his opposition to the designs of Paoli. Promoted (July) to a captaincy. Commandant of artillery at the siege of Toulon. Dec. 19, appointed brigadier-general of artillery in Italy.

1795. 13 *Vendémiaire* (Oct. 5), defeats the attack of the sections on the convention. Appointed commander-in-chief of the army of the interior.

1796. Appointed commander-in-chief of the army of Italy (Feb. 23). Married (March 9). Battle of Montenotte (April 11); of Millesimo (14); of Mondovi (22); of Lodi (May 8). Peace with Sardinia.

Battle of Castiglione (Aug. 5); of Roveredo (Sept. 4); of Bassano (8); of Arcola (Nov. 15—17).

1797. Battle of Rivoli (Jan. 14); of Favorita (16). Peace of Tolentino with the pope (Feb. 19). Victory over the archduke Charles, on the Tagliamento (March 16). Capture of Gradisca (19); of Trieste (21). Preliminaries of Leoben (April 18). Occupation of Venice (May 16). Formation of the Ligurian republic (31). Proclamation of the Cisalpine republic (July 8). Peace of Campo-Formio (Oct. 17) with Austria.

1798 Bonaparte sails for Egypt from Toulon (May 19). Battle of the Pyramids (July 21); of the Nile (Aug. 1).

1799. Capture of Jaffa (March 10). Siege of Acre raised (May 20). Battle of Aboukir (July 25). Bonaparte sails from Egypt (Aug. 17). Revolution of 18th *Brumaire* (Nov. 9). Bonaparte named first consul (Dec. 13).

1800. Constitution of the year VIII (Feb. 7). Victories of Montebello (June 9) and Marengo (14), gained by general Bonaparte. Armistice with Austria. Nomination of the commission for drawing up a new code (Aug. 12). Conspiracy of Arena (Oct. 9) discovered. Explosion of the infernal machine (Dec. 24).

1801. Peace of Luneville (Feb. 9) with Austria; peace with Spain (March 21); with Naples (28). Concordate with the pope (July 15). Peace with Bavaria (Aug. 24); with Portugal (Sept. 29). Preliminaries of peace with England (Oct. 1). Peace with Russia (8); with Turkey (9); with Algiers (Dec. 17).

1802. Bonaparte named president of the Italian republic (Jan. 26). Peace of Amiens (March 25). Proclamation of amnesty to emigrants. The term of Bonaparte's consulship prolonged ten years (May 1). Creation of the legion of honor (19). Bonaparte declared consul for life (Aug. 2).

1803. Creation of senatorships (Jan. 4). New organization of the institute. Assumes the title of grand mediator of the Helvetic republic. Sale of Louisiana to the U. States (April 30). Renewal of hostilities with England (May 20).

1804. Arrest of Pichegru (Feb. 28). Death of the duke d'Enghien (March 21). The senate confers on Napoleon the title of emperor of the French (May 18).

1805. The emperor accepts the crown of Italy (March 18). Treaty of Presburg, between England and Russia (April 11). Austria joins the coalition (Aug. 9). Battle of Elchingen (Oct. 14); of Trafalgar (21); of Austerlitz (Dec. 2). Peace of Presburg, between France and Austria.

1806. Formation of the kingdoms of Bavaria and Würtemberg (Jan. 1). Joseph Bonaparte proclaimed king of the Two Sicilies (March 30). Prussia is allowed to occupy Hanover. Louis Bonaparte proclaimed king of Holland (June 5). Napoleon declared protector of the confederation of the Rhine (July 12). Rupture with Prussia (Oct. 6). Battle of Jena (14). Capture of Berlin (25). Occupation of Hanover. Capture of Posen, Hamburg, Bremen, Warsaw, Thorn, &c. (Oct. 28 to Dec. 6). Berlin decree declares the British isles in a state of blockade (Nov. 21).

1807. Battle of Eylau (Feb. 8); of Friedland (June 14). Peace of Tilsit, with Russia and Prussia (July 7). Erection of the kingdom of Westphalia (Aug. 8). The English bombard Copenhagen. Alliance between France and Denmark. Treaty between France and Spain. Russia breaks off all communication with England (Oct. 31). Treaty between Holland and France. British order in council of November 11, in retaliation for the Berlin decree. Capture of Lisbon by Junot. Prussia interdicts all intercourse with England (Dec. 1). Jerome Bonaparte placed on the throne of Westphalia. Milan decree (Dec. 17).

1808. French troops occupy Rome (Feb. 2); overrun Spain. Creation of majorats and hereditary titles of prince, duke, count, baron, and chevalier (March 11). Treaty of Bayonne (May 5). Joseph Bonaparte proclaimed king of Spain

(June 6). The French troops evacuate Portugal (Aug. 30). The English enter Spain (Oct. 29). War of the peninsula. Napoleon arrives in Spain (Nov. 4). Capture of Madrid (Dec. 4).

1809. Capture of Saragossa (Feb. 21); of Oporto (March 29). Austria renews hostilities (April 9). Napoleon leaves Paris (13). Battle of Eckmühl (22). Napoleon enters Vienna (May 13). Battle of Esslingen (20—22). Napoleon excommunicated. Battle of Wagram (July 5). Peace of Vienna with Austria (Oct. 14). Battle of Talavera (July 28). Divorce of Joséphine (Dec. 16).

1810. Sweden accedes to the continental system (Jan. 6). Marriage of Napoleon with Maria Louisa (March 11). Holland incorporated with France. Capture of Ciudad Rodrigo. Battle of Busaco. Institution of the *prévôtal* courts.

1811. Capture of Oporto and Olivenza (Jan. 22); and Badajoz (March 10), by the French. Birth of the king of Rome (March 20). Battle of Fuente de Onoro (May 4—6); of Saguntum (Oct. 20).

1812. Capture of Ciudad Rodrigo, by Wellington (Jan. 19); of Badajoz (April 7). Battle of Tarragona (June 12). Treaty between Prussia and France (Feb. 24); of alliance, between France and Austria (March 14); between Russia and Sweden (24), to which England accedes (May 3). Declaration of war against Russia (June 22). Battle of Smolensk (Aug. 16); of Moskwa (Sept. 7). Capture of Moscow (14). Evacuation of Moscow (Oct. 23). Conspiracy of Mallet. The twenty-ninth bulletin announces the disasters of the grand army (Dec. 3). Napoleon quits the army (5).

1813. The French army arrives at Berlin (Jan. 21). Alliance between Russia and Prussia (March 1). Capture of Dresden by the Russians (21). Napoleon declares war against Prussia; joins the army in Germany (April). Battle of Lützen (May 2); of Bautzen (20); of Vittoria (June 21). Austria joins the coalition against France (Aug. 12). Battle of Dresden (26). Treaty of Teplitz (Sept. 9). The English pass the Bidassoa (Oct. 3). Napoleon arrives at St. Cloud (Nov. 13). Passage of the Rhine by the Prussians (Dec. 31).

1814. Napoleon fixes his head-quarters at Châlons (Jan. 26). Battles of Brienne (29), of Champ-Aubert (Feb. 10), of Montmirail (11), of Vauchamp (14), of Naugin (17), of Montereau (18), gained by Napoleon. Napoleon retires to Fontainebleau (March 30). Capitulation of Paris (31). The conservative senate declares Napoleon to have forfeited the throne (April 2). Abdication of Napoleon (11). His departure for Elba (20). Entrance of Louis XVIII into Paris (May 3).

1815. Napoleon lands near Cannes (March 1); arrives at Paris (20). Coalition of the four great powers against France (25). Battle of Waterloo (June 18). Abdication of Napoleon (22); embarks on board of the Bellerophon (July 15); declared by the allies to be their prisoner; arrives in St. Helena (Oct. 13).

1821. Death of Napoleon (May 5).

Perry, Oliver Hazard, a distinguished American naval officer, was born at Newport, Rhode Island, in August, 1785. His father was an officer in the U. States navy, and he was early destined to follow his father's profession. In 1798, he entered the service as a midshipman on board the sloop of war General Greene, then commanded by his father; and, when that vessel went out of commission, he was transferred to a squadron destined to the Mediterranean. He served during the Tripolitan war, and, though debarred, by his extreme youth, from an opportunity of distinguishing himself, he acquired, by his conduct, the regard and favor of his superior officers, and the friendship and esteem of his associates. Continuing sedulously attentive to his profession, he rose with sure and regular steps. In 1810, he was attached, as lieutenant-commandant, to the squadron of commodore Rodgers, at New London, and employed in cruising in the sound, to enforce the embargo act. In the following spring, he had the misfortune to be wrecked on Watch Hill reef, opposite Stonington, in consequence of having become enveloped in a thick mist, which prevented all possibility of ascertaining his course. By his intrepidity and coolness, however, he succeeded, in a great measure, in saving the guns and property, and got off all his crew. He was examined before a court of inquiry, at his own request, in relation to this loss, and not merely acquitted of all blame, but highly applauded for his conduct. He also received a very complimentary letter, on the occasion, from the secretary of the navy, Mr. Hamilton. Soon after this event, he returned to Newport, where he married the daughter of doctor Mason. In the beginning of 1812, he was promoted to the rank of master and commander, and ordered to the command of the flotilla of gun-boats stationed at the harbor of New York. After remaining there a year, he grew tired of the irksome and inglorious nature of this service, and solicited to be removed to another of a more active kind. His request was complied with; and, as he had mentioned the lakes, he was ordered to repair to Sacket's Harbor, lake Ontario, with a body of mariners, to reinforce commodore Chauncey. Such was his popularity amongst the sailors under his command, that, as soon as the order was known, almost all of them volunteered to accompany him. The rivers being completely frozen at the time, he was obliged, at the head of a large number of chosen seamen, to perform the journey by land, which he safely accomplished. Not long after his arrival at Sacket's Harbor, commodore Chauncey detached him to take command of the squadron on lake Erie, and superintend the building of additional vessels. He immediately applied himself to increase his armament, and, with extraordinary exertions, two brigs, of twenty guns each, were soon launched at Erie, the American port on the lake. When he found himself in a condition to cope with the British force on the same waters, although the latter were still superior in men and guns, he sought the contest, and, on the morning of the 10th of September, 1813, he achieved the victory which has given his name a permanent place in the history of his country. The details of this famous action, the manner in which it was brought to a fortunate issue by the intrepidity of the commander, in exposing himself in a small boat, for the purpose of shifting his flag from a vessel no longer tenable to one in which he could continue the fight, and in which he did continue it, until the enemy's pennant was lowered, are particularly described in the article *Navy*. The merit of Perry is greatly enhanced by the reflection, that, whilst no victory was ever more decidedly the result of the skill and valor of the commander, this was the first action of any kind he had ever seen. The moderation and courtesy which he displayed towards the enemy, after the termination of the contest, were worthy of the gallantry by which it was gained, and caused the British commander, who had lost the battle by no fault of his, to say that "the conduct of Perry towards the captive officers and men, was sufficient of itself to immortalize him." In testimony of his merit, Perry was promoted to the rank of captain, received the thanks of congress and a medal, and the like marks of honor from the senate of Pennsylvania. After the evacuation of Malden by the enemy, Perry acted as a volunteer aid to general Harrison, in his pursuit of the British, and was present at the battle of Moraviantown, October 5. At the time of the invasion of Maryland and Virginia, he commanded a body of seamen and marines on the Potomac. He was afterwards appointed to command the Java frigate, built at Baltimore, and, on the conclusion of peace with England, sailed, in 1815, in the squadron under commodore Decatur, despatched to the Mediterranean to settle affairs between the U. States and Algiers. While in that sea, some difference arose between him and Mr. Heath, commandant of marines on board his ship. This produced a court-martial, by which both were subjected to a private reprimand from commodore Chauncey; but the affair did not terminate until a hostile meeting had taken place. The duel was fought in New Jersey, opposite to New York, in the summer of 1818. Neither party was injured, Heath having missed his aim, and Perry having fired in the air. In June, 1819, commodore Perry sailed from the Chesapeake in the U. States ship John Adams, for the West Indies and a cruise, with sealed orders, and was subsequently joined by other vessels, the whole under his command. His term of service, however, was near its end. In August, 1820, he was attacked by the yellow fever, and, after a few days' illness, expired on the twenty-third of the same month, just as the vessel in which he was, entered Port Spain, Trinidad. He was buried the next day with due honor; and in his own country every tribute of respect was paid to his memory. Congress made a liberal provision for the maintenance and education of his family.

Philosophy (from φιλος, friend, and

σοφία, wisdom). Philosophy owes its name to the modesty of Pythagoras, who refused the title σοφος (wise), given to his predecessors, Thales, Pherecydes, &c., as too assuming, and contented himself with the simple appellation of φιλοσοφος (a friend or lover of wisdom). The term was afterwards commonly applied to men eminent for wisdom, as Socrates, Plato, Aristotle, and others.—I. *Idea and Object of Philosophy.* Various as the idea of philosophy may be, since it is the product of independent thinking, which necessarily leads to opposite views and opinions, its subjects are the same in the minds of all reflecting men, and are the most important which can occupy human thought—God, the world, man, and their relations in general. Its end is the highest knowledge which can be attained of these subjects. With reference to its subjects, Cicero called it the "science of things human and divine." Many modern philosophers have called it the "science of the fundamental truths of human knowledge," or the "science of the essence of things;" others the "science of ideas," believing that through them we come to the knowledge of the essence of things, and, as all ideas centre in the idea of the absolute, the "science of the absolute" (thus it is called by the school of Schelling). Considered with regard to its end, namely, the attainment of the knowledge of which we have spoken, and the intellectual action by which this end is to be effected, it has been designated as the "science of reason." To *philosophize*, therefore, means, to reflect intelligently on the most elevated subjects of human knowledge, and to represent clearly and coherently the ideas thus attained. The latter is required to constitute philosophy a science, which necessarily requires system. The middle ages called this science *sapientia sæcularis*, as contradistinguished to *theology*, or *revelation*, that is, the Christian religion, whose origin is referred immediately to God. The various views of the great aim of philosophy—the relation of the infinite to the finite, the absolute to the conditional, of man to nature, &c.—form the ground of the various philosophical systems, whose mutual connexion is shown by the history of philosophy.—II. *Division of Philosophy.* Philosophy may be divided into pure philosophy, or philosophy strictly so called, which forms general notions, and investigates the laws of the mind, and applied philosophy, which applies the results of the former to the subjects of experience. To the latter belong, for example, psychology (q. v.), pedagogics (see *Pedagogue*), politics (q. v.). Philosophy, properly so called, was generally divided by the ancients into *logic*, or *dialectics* (as the doctrine of the possibility, form and method of philosophy); *physics* (at a later period *metaphysics*, q. v.), the science of the ultimate causes of all being; and *ethics*, the science of the moral nature and destiny of man. In modern times, the division of philosophy into theoretical and practical has been the most general. The theoretical or speculative philosophy was considered to have for its object the investigation of the highest truths respecting God, the world, nature and mind; the practical, their application. But it was soon seen how little the latter idea was adapted to the sciences comprehended under practical philosophy; and this was then defined to be the science of action, or of the moral nature of man in particular. Some, therefore, call theoretical philosophy the explanatory or illustrative philosophy, as it has for its object that which exists without our aid, and is the subject of our knowledge; while they term practical philosophy the *imperative*, or *preceptive*, as it gives precepts for the regulation of human action. Æsthetics (q. v.), which originated at a later period, has been considered, at times, as belonging to the practical, at times to the theoretical philosophy. Where philosophy confines itself merely to the knowledge of the action of the human mind, theoretical philosophy is the science of the laws of conceiving and knowing (æsthetics, in this case, as being the science of taste, or rather the science of the rules for judging of the beautiful, has been added to it), and practical philosophy the science of the laws of acting, or of lawful acting. But this view very easily sinks into *formalism*, by letting the objects of knowledge escape out of sight, while we reflect on its laws. At least, it will be acknowledged, that the science of the laws and criteria of knowledge is rather an introduction to theoretical philosophy than theoretical philosophy itself. Those who define the latter in the last-mentioned manner, consider logic and metaphysics as belonging to theoretical philosophy, ethics and natural law to practical. Finally, philosophy may also be divided, with reference to the three highest ideas of man,—the ideas of the true, of the good, and of the beautiful,—into theoretical, practical and æsthetical philosophy.—III. *History of Philosophy* is the relation of the most important attempts to realize the ideas of philosophy, or, according to Tennemann, the pragmatical representation of the gradual developement of philosophy as a science. It is of great value, as one of the most important branches of the history of human civilization, and from the aid which it affords to philosophical genius, because it presents the most important problems of philosophy in their true meaning, extent and connexion, illustrates the various philosophical systems, and affords a survey of the progress and aberrations of the human mind, which teaches the most instructive lessons. The history of philosophy is commonly divided into the ancient, middle and modern. Some divide it into the Greek (including the Greek philosophy in the Roman empire) and the modern European. In this division, the philosophy of the middle ages forms, as is obvious, the transition. The first period begins with the Greek, because, though the disposition to philosophize is confined to no particular nation, but is inherent in all, so that every tribe forms philosophical notions as soon as its religious conceptions pass over into reflection, and its feelings into doubt, yet philosophy was first studied scientifically by the Greeks. The philosophic notions of the inhabitants of the East must be mentioned in such a history, principally as introductory, and with reference to their connexion with the Greek philosophy, in which many Oriental notions were incorporated. Tennemann characterizes the first period (that of the Greek and Roman philosophy) as the period of the free striving of reason for the knowledge of the ultimate causes of nature and liberty. It forms a whole in itself, which, to a certain degree, carries in it the germs of all the subsequent philosophies. The Greek mind elevated itself through poetry to philosophy. The theogonies, cosmogonies and gnomes formed the introduction to philosophy, and connected it with religion. In the first division of this period—the youth of philosophy, in which reflection was not yet systematized nor separated from poetry—inquirers strove to solve the question respecting the origin of nature and the original matter of the world; *a.* in the Ionian (q. v.) school (beginning with Thales, 610 B. C.), by reflection on nature and the origin of natural things, or the first existence; further, *b.* by imaginary conceptions, as in the case of Pythagoras (q. v.) and his school (the Italian); *c.* by the dialectical opposition of reason and experience in the Eleatic (q. v.) school; and, *d.* by the union of both in the atomic school. Socrates (about 422 B. C.) opposed the notions of the Sophists, which threatened to destroy moral principle, and turned his inquiries to the moral nature and destiny of man, in which many of his pupils followed him. Philosophy thus received quite a new direction, which was first made manifest in a systematic form by his pupils, particularly Plato and Aristotle. The second division of the first period begins, therefore, with Socrates and his pupils: *a.* Plato (the founder of the academy, q. v.), and, *b.* Aristotle (the founder of the peripatetic school, q. v.). It is characterized by a systematic striving to embrace all the objects of philosophy. Plato laid the foundation of a systematic philosophy; Aristotle developed the system. The former was distinguished for the warmth and vividness of his conceptions; the latter aimed at cool and patient reflection on the nature of things. By the side of the academic and peripatetic schools, *c.* the Stoic (q. v.) school, founded by Zeno, and, *d.* the Epicurean (q. v.), placed themselves in opposition. All these systems were attacked by the sceptic school, founded by Pyrrho. (See *Scepticism.*) The other Socratic schools—*e.* the Cyrenaic, Megarean, Cynian, Elian and Eretrian—followed the practical direction of their master with more or less deviation and peculiarity. "We see here," says Schulze, speaking of this period, "the philosophic spirit, undertaking, with manly circumspection, the solution of philosophical problems and the philosophical investigation of all subjects important for mankind." For this reason the inquiries of this period into the grounds of human knowledge, are of so great importance. In the third division, the philosophic spirit appears, like an enfeebled old man, striving only to unite the conflicting parties (with the Eclectics, q. v.), or, in order to escape from scepticism, flying to mysticism (with the Alexandrians, q. v., and New Platonists, q. v., whose founder was Ammonius Saccas, 193 B. C.). The Romans propagated and fostered only the philosophy which they had received. (For more information respecting this period, see *Greek Literature*, and the articles on the different philosophers and sects.) 2. The history of the philosophy of the middle ages, from 800 to 1500, A. D., or of the scholastics (q. v.), shows the struggle of reason for philosophical knowledge, under the influence of a principle elevated above it, and given by the Christian revelation, or acting in the service of the church. (See *Scholastic Philosophy.*) The Arabians, the flourishing period of whose literature falls in the middle ages, only cultivated the Greek philosophy and some detached religious philosophemes. 3. The third period, which begins with the fifteenth century, is characterized, says Tennemann, by a freer, more independent spirit of inquiry, penetrating deeper and deeper into ultimate causes, and striving for a systematic union of knowledge. First, the scholastic philosophy was attacked by those who called to mind the ancient Greek philosophy in its original purity. After this struggle, new views were presented. Some built upon experience, as Bacon and Locke. Opposed to them, Descartes, with whom some begin modern philosophy, strove to establish it upon its own ground, by dialectic reasoning; passing over from doubt to dogmatism, and taking the consciousness of thought and existence (*cogito, ergo sum*) as the foundation of his philosophy, whence modern philosophy first received its direction towards idealism. Spinoza and Leibnitz pursued the trodden path of reflection; the latter in the way of idealism, the former in that of realism.—We intend now to give a brief sketch of the philosophy of England, Germany and France. The celebrity of the German philosophy would seem to entitle it to an extended notice. But to give a satisfactory account of it would far exceed the limits of this work. The very explanation of the terminology of the German philosophers, which would be necessary to qualify an English reader to understand their systems, would occupy much more space than we can give to the whole of this article, so that we can barely touch upon some of the most prominent points of the subject.

English Philosophy. Modern philosophy in England must be dated from Bacon. In his *Novum Organum* (1620), he takes a path directly opposite to that universally followed in his time, and, instead of appealing by dialectics to the notions of the understanding, he attempts to restore knowledge by the aid of observation, through induction. He was not the founder of a sect; he did not deliver opinions; he taught modes of philosophizing; he did not attempt to discover new principles, but to render observation and experience the predominant character of philosophy. His services consist in his dethroning scholastic philosophy, directing the attention to nature and observation, and rejecting final causes from physical inquiries; yet he made some detached psychological remarks of great value. Bacon is the father of experimental or empirical philosophy. Hobbes, the friend of Bacon, a bold and profound thinker, was the founder of modern sensualism. Philosophy, according to him, is such a knowledge of effects or appearances as we acquire by true reasoning from the knowledge we have of their causes or generation, or such causes and generations as may be, from knowing first their effects. The object of philosophy is any body of which we can conceive any generation, or which is susceptible of composition or decomposition. It is therefore either natural or civil. All knowledge is derived from the sense by motion; thoughts are representations of the qualities of bodies without us; the cause of sense is the pressure of the external object on the organ of sense; what we call *sensible* qualities are nothing but motion, and can produce nothing but motion in us; imagination is nothing but decaying sense, and understanding is imagination raised by words or other voluntary signs. Besides sense and thought, and train of thoughts, the mind has no other motion. Whatever we imagine is finite; therefore there is no idea of any thing infinite. Reasoning is nothing but reckoning, that is, adding or subtracting. The passions are internal voluntary motions; when appetites and aversions, hopes and fears, arise alternately about the same thing, the whole sum of these motions is deliberation, and the last appetite or aversion in deliberation, is will, not the faculty, but the act of willing. (See Hobbes's *Human Nature*, 1650, and *Leviathan*, 1651.) From these principles Hobbes having concluded that right and wrong were unreal, because they are not perceived by the senses, Cudworth (Intellectual System of the Universe, 1678) endeavors to refute the doctrines of the sensual theory. He maintains that there are many objects of the mind which are not derived from the sense, and could be formed only by a faculty superior to sense; these are not fantastical (conceivable by the imagination), but only noëmatical. Cudworth was, in most points, a follower of Plato; his plastic nature, a vital and spiritual but unintelligent and necessary agent, created by the Deity for the execution of his purposes, is Plato's soul of the world; and he maintains the Platonic doctrine of innate ideas. Locke introduced into the study of the human mind the method of investigation, which had been pointed out by Bacon, and gave the first example of an ample enumeration of facts, collected and arranged for the purpose of legitimate generalization. Without meddling with physiological hypotheses or transcendental metaphysics, he seeks, "in a plain, historical method, to give an account of the ways in which the understanding attains the notions it has, for which," says he, "I shall appeal to every one's own experience and observation." This cautious empiricism has been little observed by those who have called themselves his disciples in England and France, and who, neglecting his method, have seized upon some unguarded expressions to build up systems of idealism (Berkeley), scepticism (Hume), or sensualism and materialism (the French philosophers and the Hartleian school). The true spirit of the Lockian philosophy was first revived in the Scotch school (Reid and Stewart). Rejecting innate ideas, Locke teaches that sensation and reflection are the only sources of knowledge, external objects furnishing the mind with the ideas of sensible qualities, and the mind furnishing the understanding with ideas of its own operations. Sensation convinces us of the existence of solid extended substance, and reflection of the existence of thinking ones, of the cause and nature of which two kinds of being we can know nothing. Perception is a communication between the mind and external objects, carried on by means of images present to the mind; these he calls *ideas*, which he defines to be the immediate objects about which the mind is employed in thinking. Having treated at length of the origin, nature and qualities of ideas, he proceeds to consider the instrument by which men communicate their ideas to each other; and his remarks on this subject (Book iii, of Language) form the most valuable dogmatic part of his work. Knowledge is the perception of the agreement or disagreement of ideas, which consists in identity or diversity, relation, coëxistence, and real existence. Of the existence of ourselves and of God we have intuitive knowledge, which is the immediate perception of the agreement or disagreement of ideas: demonstrative knowledge is the discovery of it by the intermediation of other ideas: and these two sorts of knowledge yield complete certainty. Sensitive knowledge leads to the belief of the existence of other beings, and carries with it a reasonable confidence. Judgment is a supposition or opinion of the agreement or disagreement of ideas, and supplies the want of knowledge. Its conclusions are only probable. The ethical consequences which had been deduced from the sensualist school of Hobbes, and from a partial view of the doctrines of Locke, led Berkeley, who was not less remarkable for the virtues of his character than for the acuteness of his philosophy, to the adoption of idealism (Theory of Vision, 1709; Principles of Human Knowledge, 1710; Alciphron, or the Minute Philosopher, 1732). His Theory of Vision, which is the most valuable part of his labors, and which is an important addition to the knowledge of mind, was the first exposition of the difference between the original and acquired perceptions of the eye, and now forms an essential part of the science of optics. His scheme of idealism was founded on the Lockian doctrine of ideas. Proceeding from the principle, that we are percipient of nothing but our own perceptions and ideas, and that all the objects of human knowledge are ideas of sensation or reflection existing in the mind itself, he comes to the conclusion that the existence of bodies out of a mind perceiving them, is not only impossible, and a contradiction in terms; but, were it possible, and even real, it were impossible we should ever know it. By thus "expelling matter out of nature," he thought we should get rid of the chief cause of all error in philosophy, and all infidelity in religion. Granting the premises of Berkeley, which were the commonly received philosophical views, at least in England, his conclusions could not be refuted; but it was reserved for Hume to trace out, by a vigorous and unshrinking logic, the legitimate consequences of the Cartesian and Lockian philosophy to their ultimate results, and thus, though unintentionally, by a sort of *reductio ad absurdum*, to produce the great metaphysical revolution, of which Reid and Kant were the first movers. This he did with such power of logic, acuteness and cogency of reasoning, boldness, precision, clearness, and elegance, that scepticism never appeared more formidable or more seducing than in his writings (Treatise of Human Nature, 1738, cast anew in the Inquiry concerning Human Understanding, 1748). After showing that all attempted demonstrations of the necessity of a cause to every new existence are fallacious and sophistical, Hume endeavors to prove that the proposition, whatever has a beginning has a cause, is not intuitively certain, but is derived only from custom and belief, and is rather an act of the sensitive than of the cogitative part of our nature. In this argument, he proceeds on the ground that all certainty arises from a comparison of ideas, and the discovery of their unalterable relations, which are resemblance, proportions in quantity and number, degrees of quality and contrariety, and none of which is implied in the proposition above stated. All the objects of knowledge are impressions and ideas: the former are our more lively perceptions, when we hear or see, love or hate, or desire or will; the latter are the less lively perceptions of which we are conscious when we reflect on the former, and are copies of impressions. The existence of these perceptions as objects of consciousness cannot be denied; but to admit the existence of a percipient being, the I, is to assume that of mind, which is no more an object of knowledge than matter. There can, therefore, be no objective knowledge; and we are reduced to consciousness, the phenomena of which it takes cognizance, and their subjective relations. Hume's system of scepticism is not scepticism antecedent to study and philosophy, but consequent to science and inquiry, holding the absolute fallaciousness of the mental faculties, bringing the senses themselves into dispute, and thus sapping the foundations of all knowledge, and rejecting the existence of God, a providence, and a future state. At about the same time, Hartley (q. v.) attempted to account for all the phenomena of the mind, by the single principle of the association of ideas, and for this principle by vibrations and vibratiuncles in the medullary substance of the brain. In connexion with this plan of materialism, he defended the doctrine of necessity, representing God as the only cause of all natural effects and all human actions. To the Hartleian school belong Priestley (q.v.), Darwin, and Horne Tooke. The sceptical conclusions which Hume had irresistibly shown to be the result of the ideal system of philosophy, which had been received since the time of Descartes and Locke, led Reid (Inquiry into the Human Mind, 1764; On the Intellectual Powers 1785) to the examination and refutation of that system itself. The Scotch school of philosophy, modest and perhaps timid in its pretensions, has the merit of having first strongly and largely inculcated the absolute necessity of admitting certain principles as the foundation of all reasoning, and as being the indispensable conditions of thought itself. The Kantian philosophy is only a modification of it. According to the Scotch philosophers, certain simple ideas are implied and involved in certain intuitive judgments of the mind; thus identity, cause, time, number, truth, certainty, probability, are ideas peculiar to a rational mind, and necessarily arise in the human understanding, when employed in the exercise of its different faculties. Reid, therefore, while he rejected the Cartesian theory of ideas or images in the mind being the only objects of thought, directed his inquiries to an analysis of the various powers and principles of our constitution, in order to discover the fundamental laws of belief, which form the ground-work of human knowledge. Though professing to build only on experience, he did not limit experience to the relations of sense and its objects. Without claiming for man more than a relative knowledge of existence, and restricting the science of mind to an observation of the fact of consciousness, he analyzed that fact into a greater number of more important elements than had been recognised in the sensualist school. He showed that phenomena are revealed in thought, which cannot be resolved into any modification of sense; that intelligence supposes principles, which, as the conditions of its activity, cannot be the result of its operations; and that the mind contains notions, which, as primitive, necessary and universal, are not to be explained as generalizations from the contingent and particular, about which alone our external experience is conversant. His enumeration of the faculties of the mind, which he does not, however, give as complete, comprises perception, memory, conception, abstraction, judgment, reason, taste, moral perception, consciousness. The representation of consciousness as a special faculty, when, in reality, it is the generic condition of all mental activity, was a pregnant error in Reid's philosophy;—while his doctrine of the immediate or intuitive knowledge of mind and matter, which involved the overthrow of the ideal system, and the scepticism (or rather *nihilism*) deduced from it, was an important step in the progress of philosophy. Stewart, with some deviations, followed in the track of his master; but Brown, while he adopted many of the principles of Reid, departed, in many points of fundamental importance, from his philosophy. He assumes the existence of primary intuitions of direct belief, which are not only necessary to reasoning, but to thought itself: all our conceptions imply the idea of form, which is derived from relation in space (coëxistence), and of power, which is derived from relation in time (successive existence); cause is only the invariable antecedent, effect the invariable consequent, power the invariable antecedence, in any sequence of phenomena. All feelings and thoughts are the mind itself existing in certain states; consciousness is not a distinct faculty, but a general term for all the states of the mind. Mental (personal) identity is an intuitive law of thought, it being impossible to conceive of successive states but as modifications of the permanent being—the I. The different states are divided by Brown into the external states (sensations), produced by the presence of external objects, and the internal states, arising in consequence of preceding affections of the mind itself. The latter class is divided into intellectual states and emotions, which are all referrible to one generic susceptibility—suggestion (association of ideas). The laws of suggestion are resemblance, contrast, and nearness in time or place, which are all reducible to proximity. That capacity of suggestion which revives conceptions, Brown terms *simple suggestion*, and that which gives rise to feelings of relation, *relative suggestion*. To the former are reducible those mental states commonly called the faculties of conception, memory, imagination, and habit; to the latter, those of judgment, reasoning, and abstraction. But Brown's philosophy involves many radical inconsistencies, and would hardly deserve to be mentioned in so general a sketch, were it not remarkable as an open revolt against the Scotch system, at the moment the latter seemed to be developed with new power, and to acquire new authority on the European continent; and for the temporary popularity it possessed in Great Britain, and particularly in this country. While France and Germany have in recent times imbibed a new spirit of metaphysical inquiry, the science of mind has been entirely neglected in Great Britain, and all interest in psychological researches seems to be extinct in that country.

German Philosophy. To the remark already made, of the impracticability of giving a satisfactory view of German philosophy within the limits to which we are confined, we must add, that if any science requires to be studied in a spirit of candor, and with a sincere desire to understand its real merits (and what science can be properly studied without such a spirit?), it is intellectual philosophy, particularly German philosophy. Nothing is easier than to take a phrase or a passage relating to subjects beyond the reach of the senses (whether of a philosophical, religious, or poetical character), and turn it into ridicule. We would also remark, that, since German philosophy has of late years diverged with unprecedented rapidity in all directions, and system after system has been raised and overthrown, it has been often asked, What has been gained by it? Have the philosophers settled any of the mysteries which have always perplexed the mind of man; or have they acquired any clearer and deeper knowledge respecting the most important interests of human society, government, law, and the civil ties in general, on which they write so much? We answer, that the Germans have acquired, by their philosophy, a spirit of scientific liberty, unknown in other nations. Every nation and age has its task and condition. As yet it has not been the lot of Germany to enjoy the blessings of civil freedom, and the manly spirit which it generates; but the spirit which pervades the best German works on religion, on literature, on natural philosophy, may well challenge comparison. The spirit of system and independent thought, which German philosophy has infused into German literature, sometimes leads, indeed, to prolixity of exposition, and sometimes to extravagance of speculation; but these are small disadvantages compared with the benefit which it has conferred; and the whole tone of the literature proves, what we have had occasion to remark more than once already, that civil liberty alone is wanting to hold the Germans up to the world as a noble and manly nation. While we dwell on the good consequences which German philosophy has had on the spirit of inquiry, we are far from pretending that it has been productive of unmixed good, or that every system of German philosophy which has acquired distinction in its time, deserves its reputation. How often has a figurative expression been taken for a profound truth, and served as the basis of arguments and systems, which sink into nothing before a critical investigation, and to which nothing but the imagination of Germans could have given a short-lived existence! This unsoundness, which is found in many German systems, is owing, in a great degree, to the predominance of the speculative over the active life in that country. Free institutions would soon enable them to shake off the dreaminess of the closet, by rousing them to vigorous action on practical subjects. The ill repute in which German philosophy long stood with foreigners, is owing, partly, to the reckless independence with which most of the German philosophers have created and shaped their language according to their systems, so as to render its study particularly difficult for strangers; partly to the premature and partial applications which inferior talents have made of those systems to other branches of literature, and which have mostly been known sooner than the original system; partly to real extravagances; but greatly, also, to the difficulty of justly estimating so large and so new a department of literature. A German philosophy, properly so called, could not appear until German prose had received a certain degree of cultivation. As long as the German philosophers wrote chiefly in Latin, they confined themselves principally to the defence of the predominating philosophy of the time—e. g. the scholastic philosophy—or else attacked it (after the fifteenth century), but without establishing new systems. The proper German philosophy is distinguished by an incessant striving for a systematic character, and the deduction of scientific conclusions from the simplest and most comprehensive principles. It must be considered to begin with Leibnitz (q. v.), towards the end of the seventeenth century. Leibnitz (q. v.) endeavored to deduce philosophical truth from necessary and innate ideas of reason, by the way of mathematical demonstration. This system he opposed to the sensualism of Locke. His doctrine of innate ideas, of the monads, of the preëstablished harmony of the universe, his theodicea, furnished subjects of thought to the most thinking men of his time. His followers, in particular Wolf and Baumgarten, extended his system, about the time of Frederic the Great; and, by their endeavors to reduce philosophy to one principle, and by the precise formulas in which they carried on their demonstrations, the formal side of philosophical science gained very much. The fault of this system was, that it sought truth merely by the way of definitions and demonstrations, as in mathematics. Wolf's disciples carried this system almost to absurdity. Lambert, Ploucquet, Reimarus, and others, his followers, cultivated logic with great success. This school was followed by a period of eclectic philosophy, in which, however, the scepticism of Hume, the examination of the understanding by Locke, the psychological investigations of Feder, Garve, Mendelssohn, the works of Platner and Abbt, together with the revived interest for art and criticism, and not less the sentimentality which reigned in poetry as well as in religion, excited and directed the attention of the whole thinking world to the nature of their own souls, and prepared the way for the system of Immanuel Kant. (q. v.) With him begins the second period of German philosophy. He showed that, instead of inquiring what the world was in itself, we ought first to inquire how we perceive it. Thus he began to examine all the means which man possesses for the perception of the external world, and determined the laws according to which every organ operates, and the sphere to which it is limited. His criticism denied to reason the possibility of finding and proving any truth, without the sphere of consciousness and of physical phenomena. The theory of Kant was extended by his followers in many directions, yet not with the harmony and comprehensive judiciousness with which he united and arranged all the different kinds and objects of mental activity. The human mind, however, was not satisfied with learning only its own limits. The relation between its own notions and realities, was again endeavored to be determined in different ways. Fichte rejected the idea of any such relation, by admitting the absolute existence only of the thinking individual, by which he considered even the objects of thought to be produced; he denied the reality of an exterior world. This system atoned for its exclusive character by the high standard to which this vigorous spirit raised the moral dignity of man. Between him and Kant stands Fries, in his *Neue Kritik der Vernunft*; he likewise was distinguished for the moral tendency of his philosophy. In opposition to Fichte, Schelling proceeds from the idea of the objective absolute (see *Objective*), and arrives at length at the idea of individual existence (the I), from which Fichte sets out. He begins a third period in the German philosophy with his doctrine of Identity, in which he determines the relation between subject and object. To him, mind and nature are only manifestations of the Divine principle, and the knowledge of this identity between thought and outward existence rests on intellectual intuition. Oken has founded a natural philosophy on this system. Hegel* (q. v.) has sought to establish a strict idealism, on Schelling's principles, by considering the absolute as the understanding conceiving of itself, and makes three divisions in his philosophy,—logic, the philosophy of nature, and the philosophy of mind. Each of these systems has, at different periods, found many followers, who, with more or less success, have labored to extend them in different directions. Krug has united all the principal doctrines of Kant systematically in his Transcendental Synthetics. Bardili considered all philosophy as resting on the idea of the absolute, which he found in the act of thinking; he, therefore, treated logic as a source of real knowledge. Wagner and Eschenmayer endeavored to correct or to extend the doctrine of Schelling. Jacobi's doctrine on feeling and faith is of an original character. Schulze distinguished himself as an opponent of Reinhold by a limited scepticism, Platner by his aphorisms, and Herbart by his metaphysical fragments. In considering the many changes German philosophy has undergone in so short a time, we shall naturally feel inclined to reproach this mania for new systems; but the truth or error of any comprehensive view cannot be appreciated justly, until it is developed in a consistent form, and the more different systems can be compared, the more comprehensive and impartial will be our knowledge.

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* He died in Berlin, in the winter of 1831—2, of the cholera.

French Philosophy. Totally opposite to German philosophy is the modern French philosophy. While the former strives to explore the abysses of existence, and to comprehend the mysteries of human nature, and thus often loses itself in flights of imagination, the French, of late, have understood by *philosophy* little more than the critical investigation of those subjects which are comprehensible at first view, and have banished from philosophy all that cannot be grasped by the plainest common sense; and so far have they carried this system, that at one time it proved most dangerous to morality, the original principles of which are by no means susceptible of such plain and simple demonstration as was required by the French school; and we have little doubt that, to this day, *sensualism*, or the French philosophy, founded on Condillac's system, produces fatal effects. So much, indeed, do the French and Germans differ, that what the former call *philosophy* and *metaphysics* is, in fact, totally different from that which the latter designate by the same terms. It is also very characteristic of the French people, that their modern philosophy may be said to have unfolded itself in fashionable society. Towards the end of the seventeenth century, a tone of light philosophy was introduced into polite circles, in opposition to the affected morality then in vogue, which, however, had some connexion with the old romantic spirit. Both systems had adherents in the world of fashion, under the patronage of ladies: at the head of one party was the *spirituel* Ninon de l'Enclos, with her philosophizing friend St. Evremond; at the head of the other, the amiable marchioness de Sevigné. Both the circles acquired literary celebrity; language attained the highest refinement, and conversation its greatest perfection; but the consequence was, that a conversational tone was given to literature. Descartes (q. v.), Arnauld (q. v.), (to whom is ascribed the *Art de Penser*), Nicole, De la Forge, and the deep-thinking Malebranche (q. v.), belong to another time. The direction which modern French philosophy has taken originated from the English philosopher Locke. (q. v.) On the doctrines of this acute reasoner a system of sensualism was founded by Etienne Bonnot de Condillac (born 1715, died 1780). He taught that the basis, the principle of all that is developed in our mind, is sensation (*la faculté de sentir*). All ideas, knowledge, faculties, even reflection, actions and customs, are successive transformations of this principle. "The sensation only changes its form, as the ice when it is dissolved into water, and evaporated in vapor." (See *Condillac.*) The simplicity of his method, and the clearness of his exposition, awakened the greatest interest. He became the leader of a school still predominating in France. The Encyclopædists (see *Encyclopédie, the French*) contributed most to its propagation, particularly Diderot, D'Alembert and Helvetius. The effect was striking: the most difficult of all sciences, which requires the deepest study and the most persevering reflection, was brought within the reach of the multitude; every one could talk about metaphysics. But it was overlooked that this system did not lead men a step nearer to the solution of the highest and most important problems. The system was carried farther and farther, not always in accordance with the views of the author, but according to the direction given by him. Sensation (the lowest degree of intellectual action, and that in which we are most dependent upon the external world) being now considered the essential principle in all the operations of the mind, the distinction between sensation and perception which Locke had made being rejected, and man being regarded only as an animal of a somewhat finer organization than the others, but moved only by sensual impulses (as in the system of Helvetius), the consequence was, that the material world was considered as the only form of existence, mind as only a connexion of atoms, the basis of its actions egotism, and the end of these actions a refined sensuality; thence the belief in moral freedom, virtue, God, providence and immortality, was looked upon as a folly unworthy of a reflecting mind, and a complete materialism became predominant. We have said that Condillac's system continues to predominate in France; still, however, several distinguished philosophers follow another path, and we are far from asserting that the consequences which we have ascribed to the system still exist in their full extent. It may be safely said, that there prevails in France, at present, a deep-felt want of the belief in a God, which not being able to find satisfaction in the dogmas of the Catholic church, the religion of the overwhelming majority is in an unsettled state. Of this want, even the propagation of the extravagant doctrines of the *St. Simonians*, which would be otherwise inconceivable, is a strong proof. But there are still more persons in France whose minds are unillumined by a belief in immortality, than in any other civilized nation. The acute understanding and inexhaustible wit of Voltaire, the clear intellect of D'Alembert, at the head of the Encyclopædists, spread through society the dangerous doctrines just mentioned. Rousseau's enthusiasm stands alone in the French literature of that time. The revolution, which produced so great a change in the character of the French, and made them more acquainted with foreign nations than their national pride had allowed, especially with the Germans, had also considerable influence upon their philosophy. The want of a deeper, more earnest philosophy, is apparent even in Rousseau's works; still more in those of St. Pierre, Châteaubriand, Claude St. Martin, and the marquis Bonald; also Prosper de Barante, in his work on the literature of France in the eighteenth century, was actuated by this idea; and De Gerando, Villers, and the baroness de Staël-Holstein, from the same feeling, have directed attention to German philosophy. Among those who have attempted to give philosophy a better character, Laromiguière is distinguished. His *Leçons de Philosophie, ou Essai sur les Facultés de l'Ame* (2d ed., Paris, 1820, 2 vols.), is valuable. He opposes the doctrine of Condillac, as to the first and sole principle. He stands nearer to Locke than to Condillac. Count Destutt de Tracy has become well known by his *Idéologie* (3d edit., Paris, 1817). Locke and Condillac are his idols. He extends somewhat the principle of Condillac, and considers sensations as predicable not only of the objects of the external world, but also of those of the inner. Ch. Vict. de Bonstetten's *Etudes de l'Homme* (Geneva, 1821, 2 vols.) is a valuable work, written in the spirit of the higher psychology, but more in the shape of sketches and hints than of a methodical system. Bonstetten strives particularly to defend the emotions of the heart, the feelings, against the coldness of logicians, who derive all the operations of the mind from ideas only. We must mention also Degerando, whose *Hist. comparée des Systèmes de la Philosophie* (Paris, 1804, 3 vols.) lately appeared in a new edition. Victor Cousin has opened a new path. He approaches the German philosophy. (See his article.) His introductory *Cours de Philosophie* has lately been very well translated into English by Mr. Linberg (Boston, 1832, 1 vol.). We ought to mention, also, the works of St. Simon, as among the modern works which have attracted most attention. (See *St. Simon*.) We shall conclude our remarks with a passage of the article *Philosophie*, from the *Encyclopédie Moderne*: "France cannot be said, at present, to have any system of intellectual philosophy properly its own. Fluctuating between the spiritualism of Germany, which rejects empiricism, and the views of the Scotch school, which admits the authority of experience, it adopts some views from each, whence results a sort of eclecticism, favorable at least to investigation, even if it is not, in all its parts, conformable to truth."

For the Italian philosophers of the middle ages, see *Italy*, division *Italian Literature*. There is no school of modern Italian philosophy. For a complete history of philosophy, we refer to Tennemann's *History of Philosophy* (in German; Leipsic, 1798—1810, 18 vols., in large octavo), of which a synopsis has been also published, and a translation of the latter, by Vict. Cousin (Paris, 1829, 2 vols., 8vo.); also to Ritter's *History of Philosophy* (in German), not yet finished.

Pergolesi, Giovanni Battista, one of the most distinguished musicians, whose proper name was *Giambattista Jesi*, was born at Pergola (hence his name, *Pergolesi*), in the March, according to some in 1707, according to others in 1704. In 1717, he entered the *Conservatorio dei poveri di Gesù Cristo* at Naples, then under the direction of Gaetano Grecco. This great master initiated his pupil in all the secrets of the art. At the age of fourteen years, Pergolesi had distinguished himself by various compositions, in which melody was sacrificed to artifices of counterpoint; but no sooner had he left the Conservatorio, and studied the vocal compositions of Vinci and Hasse, than he changed his manner entirely. In his first opera, however, only some *ariette* were well received; but prince Stigliano judged favorably of Pergolesi's talents, and procured him employment (1730—34) at the *Teatro nuovo*. During this time, he also composed *La serva Padrona*, for the theatre San-Bartolomeo. But his genius was not satisfied with ordinary subjects: he seized an opportunity to make himself known at Rome by a more important composition, and wrote, in 1735, his *Olimpiade*, for the theatre Tordinone. Yet this opera, though of great merit, did not please much. Pergolesi now returned to Naples, and composed his *Dixit* and *Laudate*, the success of which afforded a compensation for the former coldness of the public. His health declined, and his friends induced him to go to Torre del Greco, at the foot of mount Vesuvius, which is considered salutary for pulmonary patients. Here he composed his far-famed *Stabat Mater dolorosa*, his cantate *Orfeo*, and the *Salve, Regina*, his last work. He died in 1739, at Puzzuoli, when his fame had just begun to spread over Europe. The theatres and the churches resounded with his productions. In Rome, his *Olimpiade* was represented anew, with the greatest magnificence, and its beauties were enthusiastically applauded. According to the universal opinion of the Italians, no one ever excelled him in musical expression. Some call him the Dominichino, others even the Raphael, of music; but he is censured for repetitions, an abrupt style, and transpositions which injure the text. Pergolesi inclines more to the soft than to the powerful; even his *Stabat*, according to the judgment of modern musicians, is somewhat weak. His manner is tinged with melancholy, originating, perhaps, from his feeble state of health.

Porto Rico, or **Puerto Rico**, an island belonging to Spain, one of the Great Antilles (of which group it is the smallest and most easterly), lies between lat. 17° 50′ and 18° 32′ N., and between lon. 65° 43′ and 67° 10′ W., having the Atlantic on the north and the Caribbean sea on the south. It is separated from Hayti, on the west, by a channel twenty-five leagues broad. One hundred and ten miles in length, by thirty-six in breadth. Population, 400,000, of which 40,000 are slaves. Until 1815, Porto Rico was an expense to Spain; but since that time foreigners have been allowed to settle there; and it is now in a very flourishing condition. It has a fine climate, a fertile soil, and produces coffee, sugar, tobacco, cotton, fruits. The exports of the year 1830 were estimated at $2,500,000; imports at $2,000,000. The sugar crop of 1831 was estimated at 45,000 hogsheads, that of coffee at 125,000 quintals. Porto Rico, which was called by the natives (Arrowauks) *Boriqua*, was discovered by Columbus in 1493, and is said to have contained at that time 600,000 inhabitants, who were soon exterminated by the Spaniards.

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